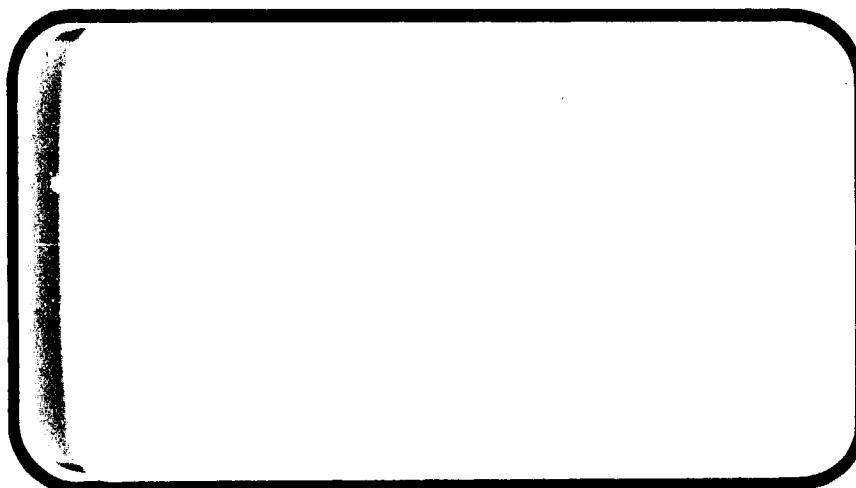




NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

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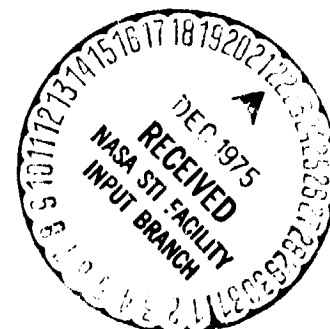
(NASA-CR-141817) RESULTS OF A PRESSURE
LOADS INVESTIGATION ON A 0.030-SCALE MODEL
(47-OTS) OF THE INTEGRATED SPACE SHUTTLE
VEHICLE CONFIGURATION 5 IN THE NASA AMES
RESEARCH CENTER 9 BY 7 FOOT LEG OF THE

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SPACE SHUTTLE

AEROTHERMODYNAMIC DATA REPORT



JOHNSON SPACE CENTER

HOUSTON, TEXAS

DATA MANAGEMENT services



October, 1975

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NASA CR-141,817

RESULTS OF A PRESSURE LOADS INVESTIGATION
ON A 0.030-SCALE MODEL (47-OTS) OF THE
INTEGRATED SPACE SHUTTLE VEHICLE CONFIGURATION
5 IN THE NASA AMES RESEARCH CENTER 9 x 7
FOOT LEG OF THE UNITARY PLAN WIND TUNNEL (1A81B)
VOLUME 1 OF 5

by

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Prepared under NASA Contract Number NAS9-13247

by

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for

Engineering Analysis Division
Johnson Space Center
National Aeronautics and Space Administration
Houston, Texas

WIND TUNNEL TEST SPECIFICS:

Test Number: ARC 97-019
NASA Series Number: IA81B
Model Number: 47-OTS
Test Dates: August 6-22, 1974
Occupancy Hours: 208

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RESULTS OF A PRESSURE LOADS INVESTIGATION ON
A 0.030-SCALE MODEL (47-OTS) OF THE
INTEGRATED SPACE SHUTTLE VEHICLE CONFIGURATION
5 IN THE NASA AMES RESEARCH CENTER
9 x 7 FOOT LEG OF THE UNITARY PLAN WIND TUNNEL (IA81B)

by

E. Chee, Rockwell International Space Division

ABSTRACT

Presented in this report are results of wind tunnel test IA81B. The model tested was a 0.030-scale model of the Integrated Space Shuttle Vehicle Configuration 5. Testing was conducted in the NASA Ames Research Center 9 x 7-foot Unitary Plan Wind Tunnel to investigate pressure distributions for aeroloads analysis at Mach numbers from 1.55 through 2.5. Angles of attack and sideslip were varied from -6 to +6 degrees.

This report consists of 1 volume of force data and 4 volumes of pressure data for a total of 5 volumes. They are arranged in the following manner:

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1	IA81B force data	
2	IA81B plotted pressure data	
3	IA81B tabulated pressure data	
	(a) orbiter fuselage	pages 1-299
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ABSTRACT (Concluded)

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	(b) right lower wing surface pages 1188-1299
	(c) right upper wing surface pages 1300-1459
5	IA81B tabulated pressure data
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	(b) SRM booster pages 1572-1759
	(c) external tank pages 1760-2058
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CNF versus CLMF
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CY versus CYNF
CY versus CBL
- C) CHEO, CHEI versus ALPHAO
- D) CABO versus ALPHAO
- E) CABET versus ALPHAT
- F) CABSRB versus ALPHAL
- G) CABSRB versus ALPHAR
- H) CAFAFO versus MACH
- I) XAC/LV versus MACH
- J) CNALFA versus MACH
- K) YAC/LV versus MACH
- L) CYBETA versus MACH
- M) CHEO, CHEI versus MACH
- N) DCAF, DCNF, DCLMF versus MACH
- O) CP versus X/LB
- P) CP versus X/LT
- Q) CP versus X/LS
- R) CP versus X/CV
- S) CP versus X/CW

NOMENCLATURE
General

<u>SYMBOL</u>	<u>PLOT SYMBOL</u>	<u>DEFINITION</u>
a		speed of sound; m/sec, ft/sec
C_p	CP	pressure coefficient; $(p_1 - p_\infty)/q$
M	MACH	Mach number; V/a
p		pressure; N/m ² , psf
q	Q(NSM) Q(PSF)	dynamic pressure; $1/2\rho V^2$, N/m ² , psf
RN/L	RN/L	unit Reynolds number; per m, per ft
V		velocity; m/sec, ft/sec
α	ALPHA	angle of attack, degrees
β	BETA	angle of sideslip, degrees
ψ	PSI	angle of yaw, degrees
ϕ	PHI	angle of roll, degrees
ρ		mass density; kg/m ³ , slugs/ft ³

Reference & C.G. Definitions

A_b		base area; m ² , ft ²
b	BREF	wing span or reference span; m, ft
$C.G.$		center of gravity
\bar{L}_{REF} \bar{c}	LREF	reference length or wing mean aerodynamic chord; m, ft
S	SREF	wing area or reference area; m ² , ft ²
	MRP	moment reference point
	XMRP	moment reference point on X axis
	YMRP	moment reference point on Y axis
	ZMRP	moment reference point on Z axis

SUBSCRIPTS

b	base
l	local
s	static conditions
t	total conditions
∞	free stream

REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR

NOMENCLATURE (Continued)

Body-Axis System

<u>SYMBOL</u>	<u>PLOT SYMBOL</u>	<u>DEFINITION</u>
C_N	CN	normal-force coefficient; $\frac{\text{normal force}}{qS}$
C_A	CA	axial-force coefficient; $\frac{\text{axial force}}{qS}$
C_Y	CY	side-force coefficient; $\frac{\text{side force}}{qS}$
C_{A_b}	CAB	base-force coefficient; $\frac{\text{base force}}{qS}$ $-A_b(p_b - p_\infty)/qS$
C_{A_f}	CAF	forebody axial force coefficient, $C_A - C_{A_b}$
C_m	CLM	pitching-moment coefficient; $\frac{\text{pitching moment}}{qS_{REF}}$
C_n	CYN	yawing-moment coefficient; $\frac{\text{yawing moment}}{qS_b}$
C_l	CBL	rolling-moment coefficient; $\frac{\text{rolling moment}}{qS_b}$

Stability-Axis System

C_L	CL	lift coefficient; $\frac{\text{lift}}{qS}$
C_D	CD	drag coefficient; $\frac{\text{drag}}{qS}$
C_{D_b}	CDB	base-drag coefficient; $\frac{\text{base drag}}{qS}$
C_{D_f}	CDF	forebody drag coefficient; $C_D - C_{D_b}$
C_Y	CY	side-force coefficient; $\frac{\text{side force}}{qS}$
C_m	CLM	pitching-moment coefficient; $\frac{\text{pitching moment}}{qS_{REF}}$
C_n	CLN	yawing-moment coefficient; $\frac{\text{yawing moment}}{qS_b}$
C_l	CSL	rolling-moment coefficient; $\frac{\text{rolling moment}}{qS_b}$
L/D	L/D	lift-to-drag ratio; C_L/C_D

NOMENCLATURE (Continued)
Additions to Standard Nomenclature

<u>Symbol</u>	<u>Plot Symbol</u>	<u>Defintion</u>
A_{bET}		external tank base area, ft^2
A_{bf}		body flap upper surface area, ft^2
A_{bO}		Orbiter base area, ft^2
A_{bOMS}		OMS pod base area, ft^2
A_{bSRB}		SRB base area, ft^2
$C_{A_{bET}}$	CABET	external tank base axial force coefficient
$C_{A_{bO}}$	CABO	Orbiter base axial force coefficient
$C_{A_{bSRB}}$	CABSRB	SRB base axial force coefficient
$C_{A_{ET}}$		external tank total axial force coefficient
$C_{A_{fET}}$		external tank forebody axial force coefficient
$C_{A_{fO}}$		Orbiter forebody axial force coefficient
$C_{A_{fSRB}}$		SRB forebody axial force coefficient
C_{A_O}		Orbiter total axial force coefficient

NOMENCLATURE (Continued)

<u>Symbol</u>	<u>Plot Symbol</u>	<u>Definition</u>
$C_{p_{b_{OMS}}}$		OMS pod average base pressure coefficient
$C_{p_{b_{SRB}}}$		SRB average base pressure coefficient
C_{p_i}		pressure coefficient associated with i^{th} tap
ET		external tank
i_{b_o}		Orbiter base incidence angle to a line of constant X_o , deg.
ℓ_b		Orbiter fuselage length, in.
MRP		moment reference point
OMS		orbital maneuvering system
RN/FT	RN/L	unit Reynolds number, million per foot
S_e		elevon surface area, ft^2
SRB		solid rocket booster
x_{bf}		longitudinal distance from MRP to bodyflap area centroid, in.
x_{b_o}		longitudinal distance from MRP to Orbiter base area centroid, in.
X/C	X/CW	chordwise location on wing
X/Cv	X/CV	chordwise location on vertical tail
X_o		Orbiter longitudinal station, in.
X_o/L_o	X/LT	location on Orbiter, fraction of Orbiter body length aft of Orbiter nose

NOMENCLATURE (Continued)

<u>Symbol</u>	<u>Plot Symbol</u>	<u>Definition</u>
$C_{A_{SRB}}$		SRB total axial force coefficient
\bar{C}_e		elevon mean aerodynamic chord, in
$C_{h_{e_I}}$	CHEI	inboard elevon hinge moment coefficient
$C_{h_{e_O}}$	CHEO	outboard elevon hinge moment coefficient
$C_{m_{bf}}$	CMBF	bodyflap upper surface pitching moment coefficient
$C_{m_{b_O}}$	CMBO	Orbiter base pitching moment coefficient
$C_{m_{f_O}}$		Orbiter forebody pitching moment coefficient
C_{m_O}		Orbiter total pitching moment coefficient
$C_{n_{bf}}$		bodyflap upper surface normal force coefficient
$C_{N_{b_O}}$		Orbiter base normal force coefficient
$C_{N_{f_O}}$		Orbiter forebody normal force coefficient
C_{N_O}		Orbiter total normal force coefficient
$C_{p_{b_{ET}}}$		external tank average base pressure coefficient
$C_{p_{bf}}$		bodyflap average upper surface pressure coefficient

NOMENCLATURE (Continued)

<u>Symbol</u>	<u>Plot Symbol</u>	<u>Definition</u>
$C_{p_{b_0}}$		Orbiter average base pressure coefficient
X_S	XS	SRB longitudinal station, in.
X_S/l_S	X/LS	location on SRB, fraction of SRB body length aft of SRB nose
X_T	XT	external tank longitudinal station, in.
X_T/l_T	X/LT	location on ET, fraction of ET body length aft of ET nose
Y_0	Y0	Orbiter lateral station, in.
Y_S	YS	SRB lateral station, in.
Y_T	YT	external tank lateral station, in.
Z_{b_0}		vertical distance from MRP to Orbiter base area centroid, in.
Z_0	Z0	Orbiter vertical station, in.
Z_S	ZS	SRB vertical station, in
Z_T	ZT	external tank vertical station, in.
α_0	ALPHA0	Orbiter angle of attack, degrees
α_{S_L}	ALPHAL	left SRB angle of attack, degrees
α_{S_R}	ALPHAR	right SRB angle of attack, degrees
α_T	ALPHAT	external tank angle of attack, degrees
β_0	BETA0	Orbiter angle of sideslip, degrees

NOMENCLATURE (Continued)

<u>Symbol</u>	<u>Plot Symbol</u>	<u>Definition</u>
β_{B_L}	BETAL	left SRB angle of sideslip, degrees
β_{S_R}	BETAR	right SRB angle of sideslip, degrees
β_T	BETAT	external tank angle of sideslip, degrees
δ_{e_i}	ELV-IB	inboard elevon deflection angle, degrees
δ_{e_o}	ELV-OB	outboard elevon deflection angle, degrees
δ_R	RUDDER	rudder deflection angle, degrees
δ_{SB}	SPDBRK	speedbrake deflection angle, degrees
n	2Y/b	spanwise station, 2Y/b
ϕ	PHI	radial location, degrees
C_{A_C}		orbiter sting cavity axial force coefficient
β_I	BETAI	integrated vehicle angle of sideslip, degrees
α_I	ALPHAI	integrated vehicle angle of attack, degrees
X/LB	X/LB	longitudinal position/body length (fuselage)
Y/BW	Y/BW	local spanwise position/wing span
Z/BV	Z/BV	local spanwise position/vertical tail span

NOMENCLATURE (Continued)

<u>Symbol</u>	<u>Plot Symbol</u>	<u>Definition</u>
C_{n_f}	CYNF	forebody yawing moment coefficient, body axis system
C_{m_f}	CLMF	forebody pitching moment coefficient
C_{N_f}	CNF	forebody normal force coefficient
$C_{A_{f_0}}$	CAFAFO	forebody axial force coefficient at zero alpha
C_{N_α}	CNALFA	derivative of normal-force coefficient with respect to alpha, per degree
X_{cp}/ℓ_v	XAC/LV	vertical tail chordwise center of pressure location
Y_{cp}/ℓ_v	YAC/LV	vertical tail spanwise center of pressure location
C_{Y_β}	CYBETA	derivative of side-force coefficient with respect to beta, per degree
ΔC_{A_f}	DCAF	incremental forebody axial force coefficient
ΔC_{N_f}	DCNF	incremental forebody normal force coefficient
ΔC_{m_f}	DCLMF	incremental forebody pitching moment coefficient
CHM1	CHM1	contributions of the forward bridge to the inboard elevon hinge moment coefficient
CHM2	CHM2	contributions of the aft bridge to the inboard elevon hinge moment coefficient
CHM3	CHM3	contributions of the forward bridge to the outboard elevon hinge moment coefficient
CHM4	CHM4	contributions of the aft bridge to the outboard elevon hinge moment coefficient

NOMENCLATURE (Concluded)

Data Set Identifiers

The fourth letter of the data set identifier indicates the component,
e.g., RETI04.

Force

O	Orbiter
T	External Tank
L	Left SRB
R	Right SRB
H	Orbiter - Hinge moment
I	Integrated Vehicle

Pressure

B	Orbiter Fuselage
L	Left Wing lower surface
U	Left Wing upper surface
W	Right Wing lower surface
R	Right Wing upper surface
V	Left Vertical Tail
S	SRM Booster
T	External Tank
C	Miscellaneous Orifices

CONFIGURATIONS INVESTIGATED

The model was a 0.030-scale representation of the Rockwell International Space Shuttle Integrated Vehicle. The Orbiter was per VL70-000140A/B lines. The external tank represented VL78-000063 lines. The solid rocket motors were per VL72-000066 lines. Figures 2a, b, and c present sketches of the model configuration. Model simulation included attach structure protuberances, fairings, fuel feed lines, vent lines, etc. (basic model construction was of ARMC0 17-4 steel).

Model forces and moments were measured by 3 Task Corporation six component balances. A 2.5 in. MK XXA was mounted in the Orbiter. A 2.0 in. MK IIIC was mounted in the external tank. A 1.5 in. MK IIC was mounted in the LH SRB. The balances are attached to stings entering each component through the base areas. Figures 2m and 2n show the balance locations in the model. The RH wing inboard and outboard elevon panels are instrumented with hinge moment gages as shown in figure 1c.

Surface and base pressures were measured on the Orbiter, external tank and solid rocket motors. The Orbiter was instrumented with a total of 480 pressure-orifices, of which 6 were base and cavity pressures. The external tank was instrumented with a total of 314 pressure orifices. The LH SRM was instrumented with a total of 149 pressure orifices. Orifice locations are presented in tables IV through VIII and figures 2d through 2 l.

The following model shorthand configuration notation was used:

LVA' = AT₂₈ thru 32 FL₁₀ FL₁₁ FR₁₀ N₈₆ O₁ PT₁₂ PT₂₂₋₂₇ S₂₁ T₂₈

CONFIGURATIONS INVESTIGATED (Concluded)

AT ₂₈ thru 32	=	Attach hardware structure
FL ₁₀	=	LH ₂ feedline
FL ₁₁	=	LO ₂ feedline
FR ₁₀	=	Umbilical door fairing
N ₈₆	=	Nozzles for solid rocket boosters
O ₁	=	B ₂₆ C ₉ E ₄₄ F ₉ M ₁₆ N ₂₈ R ₅ V ₈ W ₁₁₆
PT ₁₂	=	Lightning rod on nose of T ₂₈
PT ₂₂ thru 27	=	External protuberance
S ₂₁	=	Solid rocket boosters
T ₂₈	=	External tank

Where model dimensions are as described in table III. The LVA' configuration was tested with speed brake gap both sealed and open and with elevon gap both sealed and open. The (instrumented) right elevon gap was sealed by a permanent sponge rubber seal. The left elevon gap was sealed with plaster. Speed brake gaps were sealed by red wax.

TEST FACILITY DESCRIPTION

The Ames Research Center 9 by 7 foot Supersonic Wind Tunnel is a closed-circuit, air-medium, variable-density facility capable of attaining Mach numbers from 1.55 to 2.50 at Reynolds numbers from $1.5 \times 10^6/\text{ft}$ to $6.5 \times 10^6/\text{ft}$. The 18 foot long test section is part of a dual system of supersonic circuits and uses the same motors and compressor as the 8 by 7 foot tunnel. A sliding-block throat arrangement is used to control tunnel Mach number.

Models are supported by means of stings attached to the wall-to-wall strut/BOR system of the 9 by 7 foot tunnel.

Schlieren photograph, shadowgraphs, and pressure monitoring instrumentation are available.

DATA REDUCTION

All balances data were reduced to coefficients about a moment reference point located at:

$$X_T = 976.0 \text{ in.}$$

$$Y_T = 0.0 \text{ in.}$$

$$Z_T = 400.0 \text{ in.}$$

The following reference dimensions were used:

$$S = 2690.0 \text{ ft}^2$$

$$z_b = 1297.0 \text{ in.}$$

Hinge moment data were reduced about their respective hinge lines using the following reference values:

$$S_e = 210.0 \text{ ft}^2$$

$$\bar{C}_e = 90.7 \text{ in.}$$

Base and forebody coefficients were calculated as follows:

$$C_{N_{b_0}} = -C_{P_{b_0}} \frac{A_{b_0}}{S} \tan i_{b_0} - C_{P_{bOMS}} \frac{A_{bOMS}}{S}$$

$$C_{N_{bf}} = -C_{P_{bf}} \frac{A_{bf}}{S}$$

$$C_{A_{b_0}} = -C_{P_{b_0}} \frac{A_{b_0}}{S} - C_{P_{bOMS}} \frac{A_{bOMS}}{S}$$

$$C_{A_{bET}} = -C_{P_{bET}} \frac{A_{bET}}{S}$$

DATA REDUCTION (Continued)

$$C_{A_{bSRB}} = -C_{P_{bSRB}} \frac{A_{bSRB}}{S}$$

$$C_{m_{b_0}} = - \frac{x_{b_0}}{l_b} C_{N_{b_0}} + \frac{z_{b_0}}{l_b} C_{A_{b_0}}$$

$$C_{m_{bf}} = - \frac{x_{bf}}{l_b} C_{N_{bf}}$$

$$C_{N_{f_0}} = C_{N_0} - C_{N_{b_0}} - C_{N_{bf}}$$

$$C_{m_{f_0}} = C_{m_0} - C_{m_{b_0}} - C_{m_{bf}}$$

$$C_{A_{f_0}} = C_{A_0} - C_{A_{b_0}}$$

$$C_{A_{fET}} = C_{A_{ET}} - C_{A_{bET}}$$

$$C_{A_{fSRB}} = C_{A_{SRB}} - C_{A_{bSRB}}$$

$$A_{bET} = 597.56 \text{ ft}^2$$

$$A_{bf} = 142.6 \text{ ft}^2$$

$$A_{b_0} = 314.10 \text{ ft}^2$$

$$A_{bOMS} = 122.57 \text{ ft}^2$$

DATA REDUCTION (Concluded)

$$A_{b_{SRB}} = 201.07 \text{ ft}^2$$

$$i_{b_o} = 14.75^\circ$$

$$x_{bf} = 1329.7 \text{ in.}$$

$$x_{b_o} = 1263.0 \text{ in.}$$

$$z_{b_o} = 336.5 \text{ in.}$$

Base pressure coefficients represented the average pressure on the respective bases. Body flap pressure coefficients were as given by figure 20.

Right SRB forces and moments were calculated as a mirror image of left SRB forces and moments about $\beta = 0$:

$$\left(\begin{array}{c} \text{Coefficient on} \\ \text{Right SRB} \\ \text{at } +\beta \end{array} \right) = \left(\begin{array}{c} \text{Coefficient on} \\ \text{Left SRB} \\ \text{at } -\beta \end{array} \right)$$

Forces and moment on each component (Orbiter, ET, left SRB, and right SRB) were interpolated versus the respective angle of attack and angle of sideslip of each component to nominal angles. These data were then added to provide total integrated vehicle forces and moments.

TABLE I

[illegible]

TEST: IA81B 97-019

DATE: 8-23-74

DATA SET / RUN NUMBER COLLATION SUMMARY

DATA SET IDENTIFIER	CONFIGURATION	SCHD.		S ₁	S ₂	M	R ₁	R ₂	B=0	ALPHA - α						TEST RUN NUMBERS	
		α	β							-6	-4	-2	0	+2	+4		+6
RET 030	LVA' W/ALL	D	0	0	0	55	2.5	3.0	100								
31	HINGELINES SEALED	D	0	0	T	55	2.2	T	101								
32		D	0	0		55	2.0		102								
33		I	0	0		55	1.55	↓	103								
34		E	0	3/4		0	1.55	2.5	115								
35		A	A	3/4		T	1.55	T		112	116	117	118	119	120	121	
36		A	A	3/4			2.0			122	123	124	125	126	127	128	
37		A	A	3/4			2.2			129	130	131	132	133	134	135	
38		A	A	3/4			2.5			136	137	138	139	140	141	142	
39		G	G	0			1.55			143	144		145		146	147	
40		G	G	0			2.0			148	149		150		151	152	
41		G	G	0			2.2			153	154		155		156	157	
42		G	G	0			2.5			158	159		160		161	162	
43		H	H	3/8			1.55			163	164	165	166	167	168	169	
44		H	H	3/8			2.0			170	171	172	173	174	175	176	
45		H	H	3/8			2.2			177	178	179	180	181	182	183	
46		H	H	3/4			1.55			184	185	186	187	188	189	190	
47	Y	H	H	3/4	Y	Y	2.0	Y		191	192	193	194	195	196	197	

SEE SUPPLEMENTARY SCHEDULE ON FOLLOWING PAGE

α OR β

SCHEDULES

SEE PAGE 28

SEE SUPPLEMENTARY SCHEDULE ON FOLLOWING PAGE.

SEE PAGE 28

SECTION 5

TABLE II (Continued)

COMPONENT	DATASET IDENTIFIER	INDEPENDENT VARIABLES	FORCE COEFFICIENT SCHEDULE									
Orbiter	RETOXX	BETAO ALPHAO	CNF	CLMF	CA	CY	CYNF	CBL	*CABT	CAF		
External Tank	RETTXX	BETAT ALPHAT	CNF	CLMF	CA	CY	CYNF	CBL	CABT	CAF		
Left SRB	RETLXX	BETAL ALPHAL	CNF	CLMF	CA	CY	CYNF	CBL	CABT	CAF		
Hinge Moment	RETHXX	BETAO ALPHAO	CHEI	CHEO	CHM1	CHM2	CHM3	CHM4				

* Where CABT is $C_{A_b} + C_{A_c}$ for each vehicle component.

TABLE II (Concluded)

Nominal α or β Schedules

		Schedule A							Schedule H						
α	β	-6	-4	-2	0	2	4	6	-6	-4	-2	0	2	4	6
-6	-6	-	x	x	x	x	x	-				x			
-4	-4	x	x	-	x	-	x	x		x		x		x	
-2	-2	x	-	x	-	x	-	x				x			
0	0	x	x	-	x	-	x	x		x	x	x	x	x	x
2	2	x	-	x	-	x	-	x				x			
4	4	x	x	-	x	-	x	x		x		x		x	
6	6	-	x	x	x	x	x	-				x			

Schedule G

α	β	-6	-4	0	4	6
-6	-6			x		
-4	-4		x	x	x	
0	0	x	x	x	x	x
4	4		x	x	x	
6	6			x		

Schedule D

$\beta = 0, \alpha = -6, -4, 0, 4, 8, 10$

Schedule E

$\beta = 0, \alpha = -6, -4, -2, 0, 2, 4, 6$

Schedule I

$\beta = 0, \alpha = -6, -4, 0, 4, 8$

TABLE III. - MODEL DIMENSIONAL DATA

MODEL COMPONENT: ATTACH STRUCTURE - AT₂₈

GENERAL DESCRIPTION: Rear orbiter to ET attach structure (LH and RH). 2 Members.

MODEL SCALE: 0.030

MODEL DRAWING NO.: _____

DRAWING NO.: VL78-000063, -000062B

DIMENSIONS:

	<u>MEMBER</u>		<u>FULL SCALE</u>	<u>MODEL SCALE</u>
	#1	X _O	<u>1317.00</u>	<u>39.51</u>
		Y _O	<u>- 96.50 (LH)</u>	<u>- 2.895</u>
			<u>96.50 (RH)</u>	<u>2.895</u>
		Z _O	<u>267.50</u>	<u>8.025</u>
		X _T	<u>2058.00</u>	<u>61.740</u>
		Y _T	<u>- 125.68 (LH)</u>	<u>- 3.770</u>
			<u>125.68 (RH)</u>	<u>3.770</u>
		Z _T	<u>515.5</u>	<u>15.465</u>
	#2	X _O	<u>1317.00</u>	<u>39.51</u>
		Y _O	<u>- 96.50 (LH)</u>	<u>- 2.895</u>
			<u>96.50 (RH)</u>	<u>2.895</u>
		Z _O	<u>267.50</u>	<u>8.025</u>
		X _T	<u>1872.00</u>	<u>56.160</u>
		Y _T	<u>-125.68 (LH)</u>	<u>- 3.770</u>
			<u>125.68 (RH)</u>	<u>3.770</u>
		Z _T	<u>504.5</u>	<u>15.135</u>
Diameter, In.	#1		<u>11.5</u>	<u>0.345</u>
	#2		<u>15.5</u>	<u>0.465</u>

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: ATTACH STRUCTURE - AT29

GENERAL DESCRIPTION: Right-hand umbilical fairing to ET cross member attach structure (1 member).

MODEL SCALE: 0.030

MODEL DRAWING NO.: _____

DRAWING NO.: VL78-000062B, -Marcin Marietta 82600207000

DIMENSIONS:

		<u>FULL SCALE</u>	<u>MODEL SCALE</u>
Umbilical fairing attach point:	X _O	<u>1317.00</u>	<u>39.510</u>
	Y _O	<u>66.316</u>	<u>1.989</u>
	Z _O	<u>247.182</u>	<u>7.415</u>
	X _T	<u>2058.683</u>	<u>61.740</u>
	Y _T	<u>66.316</u>	<u>1.989</u>
	Z _T	<u>583.683</u>	<u>17.510</u>
ET attach point:	X _T	<u>2058.00</u>	<u>61.740</u>
	Y _T	<u>- 12.00</u>	<u>- 0.360</u>
	Z _T	<u>568.25</u>	<u>17.048</u>
	X _O	<u>1317.00</u>	<u>39.510</u>
	Y _O	<u>- 12.00</u>	<u>- 0.36</u>
	Z _O	<u>60.75</u>	<u>1.823</u>
Attach structure dia., in.		<u>4.5</u>	<u>0.135</u>

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: ATTACH STRUCTURE - AT30

GENERAL DESCRIPTION: Forward SRB to ET attach structure (LH and RH).

MODEL SCALE: 0.030

DRAWING NO.: VL78-000066, Martin Marietta 82600204300

DIMENSIONS:		<u>FULL SCALE</u>	<u>MODEL SCALE</u>
Attach point	X _T	985.675	29.570
	Y _T	-172.50 (LH) 172.50 (RH)	- 5.175 5.175
	Z _T	0.0	0.0
	X _S	442.675	13.280
	Y _S	80.00	2.400
	Z _S	0.0	0.0
	X _O	244.675	7.340
	Y _O	- 184.5 (LH) 184.5 (RH)	-5.535 5.535
	Z _O	0.0	0.0

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: ATTACH STRUCTURE - AT₃₁

GENERAL DESCRIPTION: Rear ET to SRB attach structure (LH & RH), 3 members.

MODEL SCALE: 0.030

MODEL DRAWING: _____

DRAWING NO.: VL78-000063, -000062B, -000066

DIMENSIONS:	MEMBER	FULL SCALE	MODEL SCALE
	#1		
	XT	<u>2058.00</u>	<u>61.74</u>
	YT	<u>- 171.50</u> (LH)	<u>- 5.145</u>
		<u>171.50</u> (RH)	<u>5.145</u>
	ZT	<u>457.00</u>	<u>13.710</u>
	X _s	<u>1511.00</u>	<u>45.33</u>
	Y _s	<u>53.24</u>	<u>1.597</u>
	Z _s	<u>57.00</u>	<u>1.710</u>
	#2		
	XT	<u>2058.00</u>	<u>61.74</u>
	YT	<u>- 163.58</u>	<u>- 4.916</u>
	ZT	<u>449.81</u>	<u>13.494</u>
	X _s	<u>1511.00</u>	<u>45.33</u>
	Y _s	<u>76.56</u>	<u>2.297</u>
	Z _s	<u>15.73</u>	<u>0.472</u>
	#3		
	XT	<u>2058.00</u>	<u>61.74</u>
	YT	<u>- 161.72</u>	<u>- 4.852</u>
	ZT	<u>343.00</u>	<u>10.29</u>
	X _s	<u>1511.00</u>	<u>45.33</u>
	Y _s	<u>53.24</u>	<u>1.597</u>
	Z _s	<u>- 57.00</u>	<u>- 1.710</u>
Diameter of members, In.:	#1	_____	_____
	#2	_____	_____
	#3	_____	_____

TABLE III.- MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: ATTACH STRUCTURE - AT₃₂

GENERAL DESCRIPTION: Forward orbiter/ET attach structure (2 member structure)

MODEL SCALE: 0.030

DRAWING NO.: VL78-000062B, Martin Marietta 8260020914

DIMENSIONS:	MEMBER	FULL SCALE	MODEL SCALE
	#1	X _O <u>388.15</u>	<u>11.6445</u>
		Y _O <u>0.0</u>	<u>0.0</u>
	(Attach pt on orb Z _T = 614)	Z _O <u>LWR ML</u>	<u>LWR ML</u>
		X _T <u>1129.9</u>	<u>34.05</u>
		Y _T <u>46.50</u>	<u>1.395</u>
	(Attach pt on tank)	Z _T <u>562.58</u>	<u>16.877</u>
	#2	X _O <u>388.15</u>	<u>11.645</u>
		Y _O <u>0.0</u>	<u>0.0</u>
		Z _O <u>LWR ML</u>	<u>LWR ML</u>
		X _T <u>1129.9</u>	<u>34.05</u>
		Y _T <u>- 46.50</u>	<u>- 1.395</u>
		Z _T <u>562.58</u>	<u>16.877</u>
Diameter, In.	#1	<u>6.0</u>	<u>0.180</u>
	#2	<u>6.0</u>	<u>0.180</u>

TABLE III.- MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT : BODY - B₂₆

GENERAL DESCRIPTION : Configuration 140A/B orbiter fuselage

NOTE: B₂₆ is identical to B₂₁, except underside of fuselage has been
refaired to accept W₁₁₆.

MODEL SCALE: 0.030 MODEL DRAWING NO.: SS-A00147, Rel. 12.

DRAWING NUMBER : VL70-000143B, -000200, -000205, -006089, -000145,
-000140A, -000140B

DIMENSIONS :	FULL SCALE	MODEL SCALE
Length (OML: Fwd Sta. $X_0=235$), In.	1293.3	38.799
Length (IML: Fwd Sta. $X_0=238$), In.	1290.3	38.709
Max Width (@ $X_0 = 1528.3$), In.	264.0	7.920
Max Depth (@ $X_0 = 1464$), In.	250.00	7.500
Fineness Ratio	0.264	0.264
Area - Ft^2		
Max. Cross-Sectional	340.88	0.307
Planform		
Wetted		
Base		

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT : CANOPY - C₉

GENERAL DESCRIPTION : Configuration 3A. Canopy used with fuselage B₂₆

MODEL SCALE: 0.030 MODEL DWG NO.: SS-A00147

DRAWING NUMBER : VL70-000143A

DIMENSIONS :	FULL SCALE	MODEL SCALE
Length ($X_0 = 434.643$ to 578), In.	<u>143.357</u>	<u>4.301</u>
Max Width ($X_0 = 513.127$), In.	<u>152.412</u>	<u>4.572</u>
Max Depth (At $X_0 = 485.$), In.	<u>25.000</u>	<u>0.750</u>
Fineness Ratio	<u> </u>	<u> </u>
Area	<u> </u>	<u> </u>
Max. Cross-Sectional	<u> </u>	<u> </u>
Planform	<u> </u>	<u> </u>
Wetted	<u> </u>	<u> </u>
Base	<u> </u>	<u> </u>

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT:	<u>ELEVON - E₄₄</u>	
GENERAL DESCRIPTION:	<u>6.0 In. F.i. gaps machined into E₄₄ elevon. Flapper doors, centerbody pieces, and tipseals are not simulated. (Data are for one of two sides).</u>	
MODEL SCALE:	<u>0.030</u>	
DRAWING NUMBER:	<u>Not available</u>	
<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Area -- Ft. ²	<u>210.0</u>	<u>0.189</u>
Span (equivalent), In.	<u>349.2</u>	<u>10.476</u>
Inb'd equivalent chord, In.	<u>118.0</u>	<u>3.54</u>
Outb'd equivalent chord, In.	<u>55.19</u>	<u>1.656</u>
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord	<u>0.2096</u>	<u>0.2096</u>
At Outb'd equiv. chord	<u>0.2096</u>	<u>0.2096</u>
Sweep Back Angles, degrees		
Leading Edge	<u>0.00</u>	<u>0.00</u>
Trailing Edge	<u>- 10.056</u>	<u>- 10.056</u>
Hingeline	<u>0.00</u>	<u>0.00</u>
Area Moment (Product of area & \bar{c}) (Normal to hinge line), Ft. ³	<u>1587.25</u>	<u>0.0429</u>
Mean Aerodynamic Chord, In.	<u>90.7</u>	<u>2.721</u>

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT : BODY FLAP - E₉

GENERAL DESCRIPTION : Configuration 140 A/B

MODEL SCALE: 0.030

DRAWING NUMBER: VL70-000140B, -000200

DIMENSIONS :	FULL SCALE	MODEL SCALE
Length (Chord), In.	<u>84.7</u>	<u>2.541</u>
Max Width , In.	<u>262.308</u>	<u>7.869</u>
Max Depth , In.	<u>23.00</u>	<u>0.690</u>
Fineness Ratio	<u></u>	<u></u>
Area - Ft ²	<u></u>	<u></u>
Max. Cross-Sectional	<u></u>	<u></u>
Planform	<u>142.60</u>	<u>0.128</u>
Wetted	<u></u>	<u></u>
Base	<u>41.90</u>	<u>0.0377</u>

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: FEEDLINE - FL₁₀

GENERAL DESCRIPTION: LH₂ feedline on upper left-hand side of T₂₈.

MODEL SCALE: 0.030

DRAWING NO.: VL78-000063, -000062B

DIMENSIONS:		<u>FULL SCALE</u>	<u>MODEL SCALE</u>
Leading edge at:	X _T	2071.5	62.145
	Y _T	- 70.0	- 2.100
	Z _T	573.934	17.218
Trailing edge at:	X _T	2081.80	62.454
	Y _T	- 70.00	- 2.10
	Z _T	584.059	17.522
Diameter of line (17.0 I.D.)		18.160	0.545

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: FEEDLINE - FL₁₁

GENERAL DESCRIPTION: LO₂ feedline on upper right-hand of T₂₈.

MODEL SCALE: 0.030

DRAWING NO.: VL78-000063, VL78-000062B

DIMENSIONS:

		<u>FULL SCALE</u>	<u>MODEL SCALE</u>
Leading edge at:	X _T	<u>1000.667</u>	<u>30.02</u>
	Y _T	<u>70.00</u>	<u>2.10</u>
	Z _T	<u>150.519</u>	<u>4.516</u>
Trailing edge at:	X _T	<u>2071.5</u>	<u>62.145</u>
	Y _T	<u>70.00</u>	<u>2.100</u>
	Z _T	<u>573.934</u>	<u>17.218</u>
Line diameter (17.0 I.D.)	(O.D.)	<u>18.16</u>	<u>0.545</u>

TABLE III. -MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: FAIRING - FR₁₀

GENERAL DESCRIPTION: Umbilical door fairing between aft ET/orbiter
attach structure.

MODEL SCALE: 0.030

DRAWING NO.: VI78-000063, -000062B, Martin Marietta 82600207000

DIMENSIONS:	<u>FULL SCALE</u>	<u>MODEL SCALE</u>
Leading edge at	2052.0	61.74
Length	193.0	5.79
Width	15.0	0.45

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: OMS POD - M₁₆

GENERAL DESCRIPTION: Configuration 140C orbiter OMS pod - short pod

MODEL SCALE: 0.030

DRAWING NUMBER VL70-008401, -008410

<u>DIMENSION:</u>	<u>FULL SCALE</u>	<u>MODEL SCALE</u>
Length (OMS Fwd Sta. $X_0=1310.5$), In.	<u>258.50</u>	<u>7.755</u>
Max Width (@ $X_0 = 1511$), In.	<u>136.8</u>	<u>4.104</u>
Max Depth (@ $X_0 = 1511$), In.	<u>74.70</u>	<u>2.241</u>
Fineness Ratio	<u>2.484</u>	<u>2.484</u>
Area - Ft ²		
Max Cross-Sectional	<u>58.864</u>	<u>0.053</u>
Planform	<u> </u>	<u> </u>
Wetted	<u> </u>	<u> </u>
Base	<u> </u>	<u> </u>

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT:	<u>OMS NOZZLES -- N₂₈</u>	
GENERAL DESCRIPTION:	<u>Configuration 140A 'B orbiter OMS Nozzles</u>	
MODEL SCALE:	<u>0.030</u>	
DRAWING NUMBER:	<u>VL70-000140A (Location), SS-A00106, Rel. 5 (Contour)</u>	
DIMENSIONS:	<u>FULL SCALE</u>	<u>MODEL SCALE</u>
MACH NO.		
Length - In.		
Gimbal Point to Exit Plane		
Throat to Exit Plane		
Diameter - In.		
Exit		
Throat		
Inlet		
Area - ft ²		
Exit		
Throat		
Gimbal Point (Station) - In.		
Left Upper Nozzle		
X _o	<u>1518.00</u>	<u>45.54</u>
Y _o	<u>- 88.0</u>	<u>-2.64</u>
Z _o	<u>492.00</u>	<u>14.76</u>
Right Lower Nozzle		
X _o	<u>1518.00</u>	<u>45.54</u>
Y _o	<u>88.0</u>	<u>2.64</u>
Z _o	<u>492.00</u>	<u>14.76</u>
Null Position - Deg.		
Left Upper Nozzle		
Pitch	<u>15°49'</u>	<u>15°49'</u>
Yaw	<u>12°17'</u>	<u>12°17'</u>
Right Lower Nozzle		
Pitch	<u>15°49'</u>	<u>15°49'</u>
Yaw	<u>12°17'</u>	<u>12°17'</u>

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: BSRM NOZZLE - Ng6

GENERAL DESCRIPTION: Booster solid rocket motor nozzles.

MODEL SCALE: 0.030

DRAWING NO.: VL70-000066

DIMENSIONS:

	<u>FULL SCALE</u>	<u>MODEL SCALE</u>
Diameter, D_{ex} - In. (I.D.)	144.29	4.3287
Diameter, D_{ex} - In. (O.D.)	146.79	4.4037
Diameter, D_T - IN.		
Diameter, D_{in} - In.		
Area - Ft ²		
Max. Cross-sectional (I.D.)	113.553	0.102
Gimbal Origin:		
Left Nozzle		
X_o	1902.6	57.078
Y_o	-250.50	- 7.515
Z_o	400.0	12.00
Right Nozzle		
X_o	1902.6	57.078
Y_o	250.50	7.515
Z_o	400.0	12.00
Null Position: (Deg.)		
Left nozzle gimbal	± 8	± 8
Right nozzle gimbal	± 8	± 8

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: ET PROTUBERANCE - PT₁₂

GENERAL DESCRIPTION: Lightning rod attached to ET nose.

MODEL SCALE: 0.030

DIMENSIONS:	<u>FULL SCALE</u>	<u>MODEL SCALE</u>
Length	30.90	0.927
Diameter - In.	3.20	0.096

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: ELECTRICAL LINE - PT₂₂

GENERAL DESCRIPTION: Left-hand electrical conduit line on T₂₂.

MODEL SCALE: 0.030.

DRAWING NUMBER VL78-000063, -000062B

<u>DIMENSION:</u>		<u>FULL SCALE</u>	<u>MODEL SCALE</u>
Leading edge at:	X _T	<u>1084.333</u>	<u>32.530</u>
	Y _T	<u>- 99.591</u>	<u>-- 2.988</u>
	Z _T	<u>-139.620</u>	<u>- 4.189</u>
Trailing edge at:	X _T	<u>2058.000</u>	<u>61.740</u>
	Y _T	<u>- 99.591</u>	<u>- 2.988</u>
	Z _T	<u>- 139.620</u>	<u>- 4.189</u>
Conduit size:		<u>2.0 x 6.0</u>	<u>0.06 x 0.18</u>
Centerline of line located radially at $\theta = 35.5$ deg.		<u></u>	<u></u>

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: LO₂ RECIRCULATION LINE - PT₂₃

GENERAL DESCRIPTION: LO₂ recirculation line on right-hand upper side
side of T₂₈.

MODEL SCALE: 0.030

DRAWING NO.: VL7E-000063, -000062B, Martin Marietta 82600207000

DIMENSIONS:		<u>FULL SCALE</u>	<u>MODEL SCALE</u>
Leading edge at:	X _T	1040.667	31.220
	Y _T	94.169	2.825
	Z _T	540.934	16.228
Trailing edge at:	X _T	2062.920	61.888
	Y _T	70.000	2.100
	Z _T	573.934	17.218
Diameter of line		4.0	0.120
Centerline of line located radially at $\theta = 33^{\circ}45'$ (Right of TDC looking forward)			

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: LH₂ RECIRCULATION LINE - PT₂₄

GENERAL DESCRIPTION: LH₂ recirculation line on T₂₈.

MODEL SCALE: 0.030

DRAWING NO.: VL78-000063, -000062B, Martin Marietta 82600207000

DIMENSIONS:		<u>FULL SCALE</u>	<u>MODEL SCALE</u>
Leading edge at:	X _T	1040.667	31.220
	Y _T	- 94.169	- 2.825
	Z _T	540.934	16.228
Trailing edge at:	X _T	2062.920	61.883
	Y _T	- 70.00	-2.100
	Z _T	573.934	17.218
Diameter of line		4.00	0.120
Centerline of line located radially at $\theta = 33^{\circ}45'$ (Left of TDC looking forward)			

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: ELECTRICAL LINE - PT₂₅

GENERAL DESCRIPTION: Right-hand aft electrical conduit line on T₂₈ with
LH₂ pressure sensor line and LOX vent valve actuator line.

MODEL SCALE: 0.030

DRAWING NO.: VL78-000063, -000062B, Martin Marietta 82600207000

DIMENSIONS:

		<u>FULL SCALE</u>	<u>MODEL SCALE</u>
Leading edge at:	X _T	<u>1084.333</u>	<u>32.530</u>
	Y _T	<u>99.591</u>	<u>2.988</u>
	Z _T	<u>139.620</u>	<u>4.189</u>
Trailing edge at:	X _T	<u>2058.000</u>	<u>61.74</u>
	Y _T	<u>99.591</u>	<u>2.988</u>
	Z _T	<u>139.620</u>	<u>4.189</u>
Line diameter		<u>2.0 x 6.0</u>	<u>0.06 x 0.18</u>
Centerline of line located radially at $\theta = 35.5^\circ$			

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: LO₂ PRESSURE LINE - FT₂₆

GENERAL DESCRIPTION: LO₂ pressure line on T₂₈.

MODEL SCALE: 0.030

DRAWING NO.: VL78-000063, -000062B, Martin Marietta 82600207000

DIMENSIONS:		<u>FULL SCALE</u>	<u>MODEL SCALE</u>
Leading edge at:	X _T	360.733	10.822
	Y _T	15.145	0.454
	Z _T	407.718	12.232
Trailing edge at:	X _T	2083.5	62.505
	Y _T	63.25	1.898
	Z _T	609.00	18.27
Centerline of line located radially at $\theta = 27^\circ$			
Line diameter		2.0	0.060

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: ELECTRICAL LINE - T27

GENERAL DESCRIPTION: Electrical conduit on the right-hand forward section of T28.

MODEL SCALE: 0.030

DRAWING NO.: VL78-000062B

DIMENSIONS:

		<u>FULL SCALE</u>	<u>MODEL SCALE</u>
Leading edge at:	X _T	360.733	10.822
	Y _T	11.549	0.346
	Z _T	412.474	12.374
Trailing edge at:	X _T	876.273	26.288
	Y _T	226.114	6.783
	Z _T	646.774	19.403

Centerline of conduit located radially at $\theta = 47.5^\circ$

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT. RUDDER - R₅GENERAL DESCRIPTION: Configuration 140C orbiter rudder (Identical to configuration 140A 'B rudder).MODEL SCALE: 0.030DRAWING NUMBER: VI70-000146B, --000095

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Area - Ft ²	<u>100.15</u>	<u>0.090</u>
Span (equivalent), In.	<u>201.0</u>	<u>6.03</u>
Inb'd equivalent chord, In.	<u>91.585</u>	<u>2.748</u>
Outb'd equivalent chord, In.	<u>50.833</u>	<u>1.525</u>
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord	<u>0.400</u>	<u>0.400</u>
At Outb'd equiv. chord	<u>0.400</u>	<u>0.400</u>
Sweep Back Angles, degrees		
Leading Edge	<u>34.83</u>	<u>34.83</u>
Trailing Edge	<u>26.25</u>	<u>26.25</u>
Hingeline	<u>34.83</u>	<u>34.83</u>
(Product of area & \bar{c})		
Area Moment (Normal to hingeline), Ft ³	<u>610.92</u>	<u>0.016</u>
Mean Aerodynamic Chord, In.	<u>73.2</u>	<u>2.196</u>

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: BOOSTER SOLID ROCKET MOTOR - S₂₁

GENERAL DESCRIPTION: _____

MODEL SCALE: 0.030

DRAWING NUMBER VL72-000143D, VL77-000066

<u>DIMENSION:</u>	<u>FULL SCALE</u>	<u>MODEL SCALE</u>
Length (Includes nozzle), In.	<u>1789.40</u>	<u>53.682</u>
Max Width Tank Diameter, In.	<u>146.00</u>	<u>4.38</u>
Max Depth Aft shroud Dia., In.	<u>192.00</u>	<u>5.76</u>
Fineness Ratio	<u>9.3198</u>	<u>9.3198</u>
Area - Ft ²		
Max Cross-Sectional	<u>201.062</u>	<u>0.1809</u>
Planform	<u> </u>	<u> </u>
Wetted	<u> </u>	<u> </u>
Base	<u> </u>	<u> </u>
WP of BSRM centerline (Z _T)	<u>400.0</u>	<u>1.200</u>
FS of BSRM nose (X _T)	<u>743.0</u>	<u>22.29</u>
BP of BSRM centerline (Y _T)	<u>250.5</u>	<u>7.515</u>

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: EXTERNAL TANK - T₂₀

GENERAL DESCRIPTION: _____

NOTE: (Dimensions are to tank structural OML, TPS not included.)

MODEL SCALE: 0.030

DRAWING NUMBER VL72-000143D, VL78-000063

<u>DIMENSION:</u>	<u>FULL SCALE</u>	<u>MODEL SCALE</u>
Length, In.	<u>1844.275</u>	<u>55.328</u>
Max Width Dia., In.	<u>331.00</u>	<u>9.93</u>
Max Depth	_____	_____
Fineness Ratio	<u>5.687</u>	<u>5.687</u>
Area - Ft ²		
Max Cross-Sectional	<u>594.678</u>	<u>0.053</u>
Planform	_____	_____
Wetted	_____	_____
Base	_____	_____

TABLE III. - MODEL DIMENSIONAL DATA - Continued.

MODEL COMPONENT: VERTICAL - V₈

GENERAL DESCRIPTION: Configuration 140C orbiter vertical tail (identical to configuration 140A/B vertical tail)

MODEL SCALE: 0.030

DRAWING NUMBER: VL70-000140C, -000146B

DIMENSIONS: FULL SCALE MODEL SCALE

TOTAL DATA

Area (Theo) - Ft ²	<u>413.253</u>	<u>0.372</u>
Planform	<u>315.72</u>	<u>9.472</u>
Span (Theo) - In.	<u>1.675</u>	<u>1.675</u>
Aspect Ratio	<u>0.507</u>	<u>0.507</u>
Rate of Taper	<u>0.404</u>	<u>0.404</u>
Taper Ratio		
Sweep-Back Angles, Degrees.		
Leading Edge	<u>45.000</u>	<u>45.000</u>
Trailing Edge	<u>26.25</u>	<u>26.25</u>
0.25 Element Line	<u>41.13</u>	<u>41.13</u>
Chords:		
Root (Theo) WP	<u>268.50</u>	<u>8.055</u>
Tip (Theo) WP	<u>108.47</u>	<u>3.254</u>
MAC	<u>199.81</u>	<u>5.932</u>
Fus. Sta. of .25 MAC	<u>1463.35</u>	<u>43.901</u>
W.P. of .25 MAC	<u>635.52</u>	<u>19.066</u>
B.L. of .25 MAC	<u>0.00</u>	<u>0.00</u>
Airfoil Section		
Leading Wedge Angle - Deg.	<u>10.00</u>	<u>10.00</u>
Trailing Wedge Angle - Deg.	<u>14.92</u>	<u>14.92</u>
Leading Edge Radius	<u>2.00</u>	<u>0.060</u>
Void Area	<u>13.17</u>	<u>0.0019</u>
Blanketed Area	<u>0.0</u>	<u>0.0</u>

TABLE III. - MODEL DIMENSIONAL DATA - Concluded.

MODEL COMPONENT: WING-W₁₁₆GENERAL DESCRIPTION: Configuration 4NOTE: Identical to W₁₁₄ except airfoil thickness. Dihedral angle is along trailing edge of wing.MODEL SCALE: 0.030

TEST NO.

DWG. NO. VL70-000140A, -000200DIMENSIONS:FULL-SCALEMODEL SCALETOTAL DATAArea (Theo.) Ft^2

Planform

Span (Theo) In.

Aspect Ratio

Rate of Taper

Taper Ratio

Dihedral Angle, degrees

Incidence Angle, degrees

Aerodynamic Twist, degrees

Sweep Back Angles, degrees

Leading Edge

Trailing Edge

0.25 Element Line

Chords:

Root (Theo) B.P.O.O.

Tip, (Theo) B.P.

MAC

Fus. Sta. of .25 MAC

W.P. of .25 MAC

B.L. of .25 MAC

EXPOSED DATAArea (Theo) Ft^2

Span, (Theo) In. BP108

Aspect Ratio

Taper Ratio

Chords

Root BP108

Tip 1.00 $\frac{b}{2}$

MAC

Fus. Sta. of .25 MAC

W.P. of .25 MAC

B.L. of .25 MAC

Airfoil Section (Rockwell Mod NASA)

XXXX-64

Root $\frac{b}{2}$ =Tip $\frac{b}{2}$ =

Data for (1) of (2) Sides

Leading Edge Cuff $\frac{2}{2}$ Planform Area Ft^2

Leading Edge Intersects Fus M. L. @ Sta

Leading Edge Intersects Wing @ Sta

TABLE IV.
ORBITER WING PRESSURE TAP NUMBERS
ORBITER LEFT WING PRESSURE TAP NUMBERS

ORBITER LEFT WING PRESSURE TAP NUMBERS															NO. 2 TAPS			
2	110	TOP	208	209	210	211	212	213	214	215	216					9	9	
		BOT	-	-	-	-	-	-	-	-	-					0		
		γC	0	.010	.020	.050	.094	.229	.362	.497	.700	.824	.965	.980	.985			
2	140	TOP	217	218	219	220	221	222	223	224	225	226	227	228	229	13 34		
		BOT	-	230	231	232	233	234	235	236	237	238	239	240	241	12		
		γC	0	.010	.020	.040	.056	.163	.246	.360	.471	.545	.539	.571	.494	.455		
2	170	TOP	242	243	244	245	246	247	248	249	250	251	252	253	254	255	14 61	
		BOT	-	256	257	258	259	260	261	262	263	264	265	266	267	268	13	
		γC	0	.010	.020	.040	.053	.171	.274	.402	.565	.700	.808	.857	.905	.953	1.000	
2	200	TOP	269	270	271	272	273	274	275	276	277	278	279	280	281	282	14 89	
		BOT	-	283	284	285	286	287	288	289	290	291	292	293	294	295	14	
		γC	0	.010	.020	.050	.080	.150	.250	.400	.550	.725	.775	.850	.900	.950		
2	230	TOP	296	297	298	299	300	301	302	303	304	305	306	307	308	309	14 116	
		BOT	-	311	312	313	314	315	316	317	318	319	320	321	322	323	13	
		γC	0	.775	.850	.950	1.000											
2	300	TOP	324	325	326	327	328	329	330	331	332					14 116		
		BOT	-	336	337	338	339	340	341	342	343					13		
		γC	0	.010	.020	.050	.150	.250	.450	.750	.950							
2	350	TOP	344	345	346	347											3 123	
		BOT	-	344	345	346	347											4
		γC	0	.010	.020	.050	.150	.250	.400	.550	.700							
2	380	TOP	344	345	346	347	348	349	350	351	352					9 140		
		BOT	-	356	357	358	359	360	361	362	363					8		
		γC	0	.010	.020	.050	.150	.250	.450	.750	.950							
2	410	TOP	348	349	350	351	352	353	354	355	356	357				10 159		
		BOT	-	358	359	360	361	362	363	364	365	366				9		
		γC	0	.010	.020	.050	.150	.250	.400	.500	.750	.900						
2	440	TOP	367	368	369	370	371	372	373	374	375	376				10 179		
		BOT	-	377	378	379	380	381	382	383	384	385	386				10	
		γC	0	.020	.040	.157	.315	.503	.670	.862								
2	470	TOP	387	388	389	390	391	392	393	394						8 194		
		BOT	-	395	396	397	398	399	400	401						7		
		γC	0	.132	.1405													
2	500	TOP	402	403													2 196	
		BOT	-															

ORBITER RIGHT WING PRESSURE TAP NUMBERS

η γ		NO. & TAP TAPS														
		NO. C .041 .113 .247 .425 .547 .638 .727 .793														
2	110	TOP	404	405	406	407	408	409	410	411	412					9 205
		BOT	-	-	-	-	-	-	-	-	-					0
		γC	0	.010	.020	.040	.056	.163	.246	.360	.471	.545	.539	.571	.494	.455
2	170	TOP	413	414	415	416	-	417	418	419	420	421				9 222
		BOT	-	422	423	424	425	426	427	428	-	429				8

TABLE VI. ORBITER VERTICAL TAIL PRESSURE TAP

NUMBERS (LEFT SIDE ONLY)

VERTICAL		X/CV									
z _o FULL SCALE	z _o MODEL SCALE	η_v	0	.025	.05	.15	.30	.52	.685	.775	No. TAPS
550	16.5	.153	430	431	432	433	434	435	436	437	8
600	18.0	.316	438	439	440	441	442	443	444	445	17
690	20.7	.600	447	448	449	450	451	452	453	454	26
765	22.95	.840	456	457	458	459	460	461	462	463	35
792	23.76	.925	465	466	467	468	469	470	471	472	44

TABLE VII. EXTERNAL TANK PRESSURE TAP NUMBERS

VIEW AND LOCUS OF TAP



X_T IN	X_{T-M}	X_T/L_T	$\phi \sim$ DEGREES																No
REL SCALE	REL SCALE	REL SCALE	0	30	60	90	120	135	147	162	180	198	213	225	240	270	300	322	TAPS
290/329	8.57/9.37	0	474																1
346	10.38	0.0692	475	476	477	478	479				481		482		483	484	485	486	12
363	10.59	0.0718	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	16
403	12.09	0.0800	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	16
443	13.44	0.0844	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	16
568	17.04	0.1290	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	16
608	20.64	0.1944	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	16
710	21.54	0.2106	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	16
750	22.74	0.2223	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	16
805	24.24	0.2594	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	16
850	25.50	0.2821	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	16
900	28.50	0.3332	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	16
1050	31.50	0.3924	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	16
1150	34.50	0.4445	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	16
1250	37.50	0.4957	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	16
1350	40.50	0.5528	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	16
1500	45.00	0.6340	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	16
1700	51.00	0.7423	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	16
1900	57.00	0.8506	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	16
2040	61.20	0.9264	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	16
2146	64.38	0.9838	775	776	777	778	779		780		781		782		783	784	785	786	12
STING CAVITY			787																1
																			Σ TAPS
																			314

$L_T = 1046.91$ in.

$L_T = 1846.91$ IN.

TABLE VIII LEFT SRB PRESSURE TAP NUMBERS

X_3 IN. FULL SCALE	X_3 IN. MODEL SCALE	X_3/L_3	ϕ IN DEGREES												NO. TAPS	Σ NO. TAPS
			0	45	90	135	180	225	270	315						
200	6	0	788												1	1
260	7.8	0.0335	789	790	791	792	793	794	795	796					8	9
370	11.1	0.0950	797	798	799	800	801	802	803	804					8	17
400	12.0	0.1118	805	806	807	808	809	810	811	812					8	25
450	13.5	0.1397	813	814	815	816	817	818	819	820					8	33
550	16.5	0.1956	821	822	823	824	825	826	827	828					8	41
700	21.0	0.2794	829	830	831	832	833	834	835	836					8	49
850	25.5	0.3632	837	838	839	840	841	842	843	844					8	57
1050	31.5	0.4250	845	846	847	848	849	850	851	852					8	65
1250	37.5	0.5867	853	854	855	856	857	858	859	860					8	73
1450	43.5	0.6985	861	862	863	864	865	866	867	868					8	81
1503	45.09	0.7280	869				871		872						3	84
1505	45.15	0.7290	873		874		875		876						4	88
1517	45.51	0.7360	877		878		879		880						4	92
1519	45.57	0.737	881				883		884						3	95
1650	49.5	0.8102	885	886	887	888	889	890	891	892					8	103
1750	52.5	0.8661	893	894	895	896	897	898	899	900					8	111
1832.9	54.99	0.9120	909		910		911		912						4	115
1833.9	55.02	0.9130	913		914		915		916						4	119
1872.2	56.17	0.9344	917	918	919	920	921	922	923	924					8	127
1911.7	57.35	0.9565	925	926	927	928	929	930	931	932					8	135
SLOT 2-3			933			934			935						3	138
NOBLE CASE 4			936												1	139

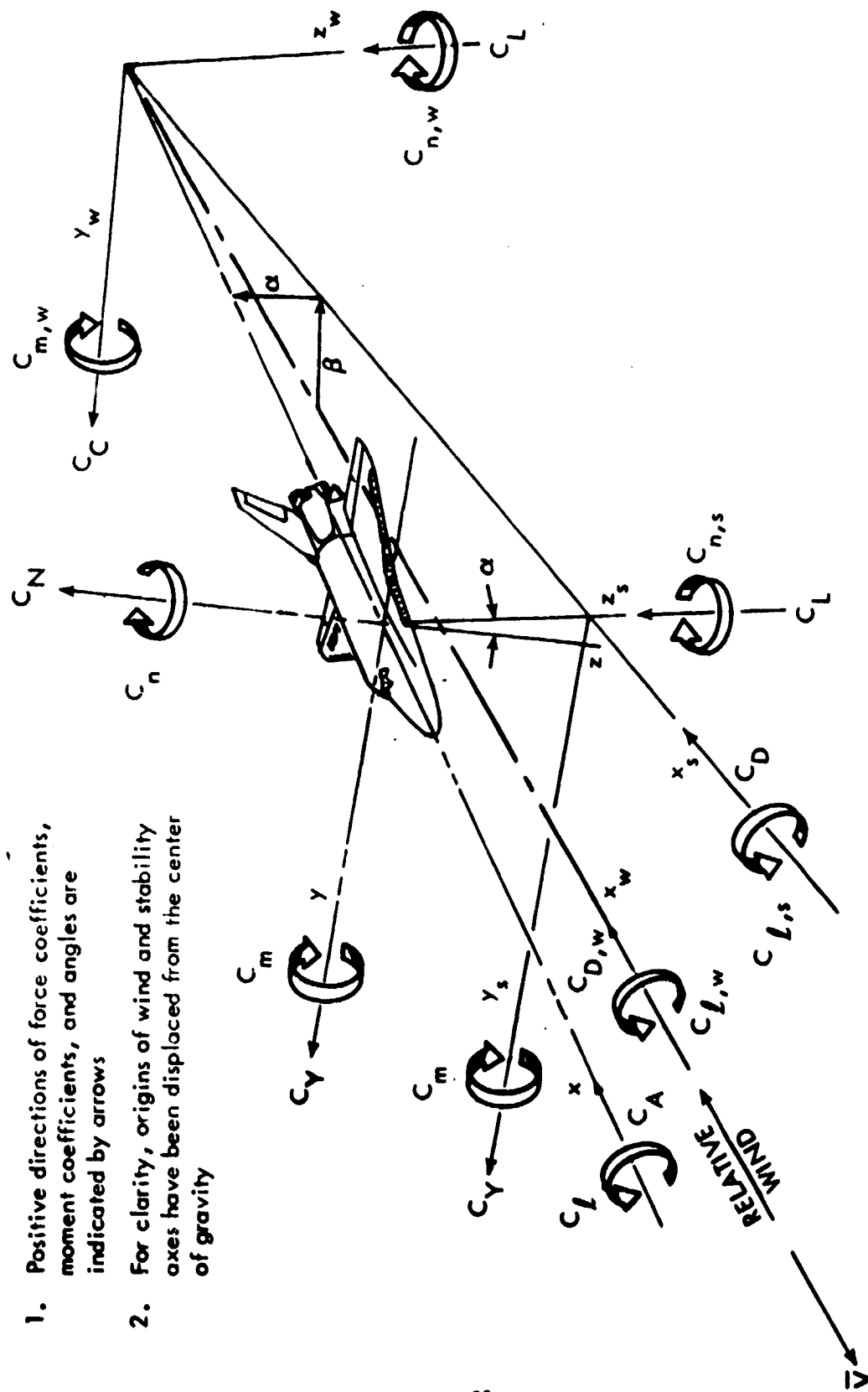
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* *

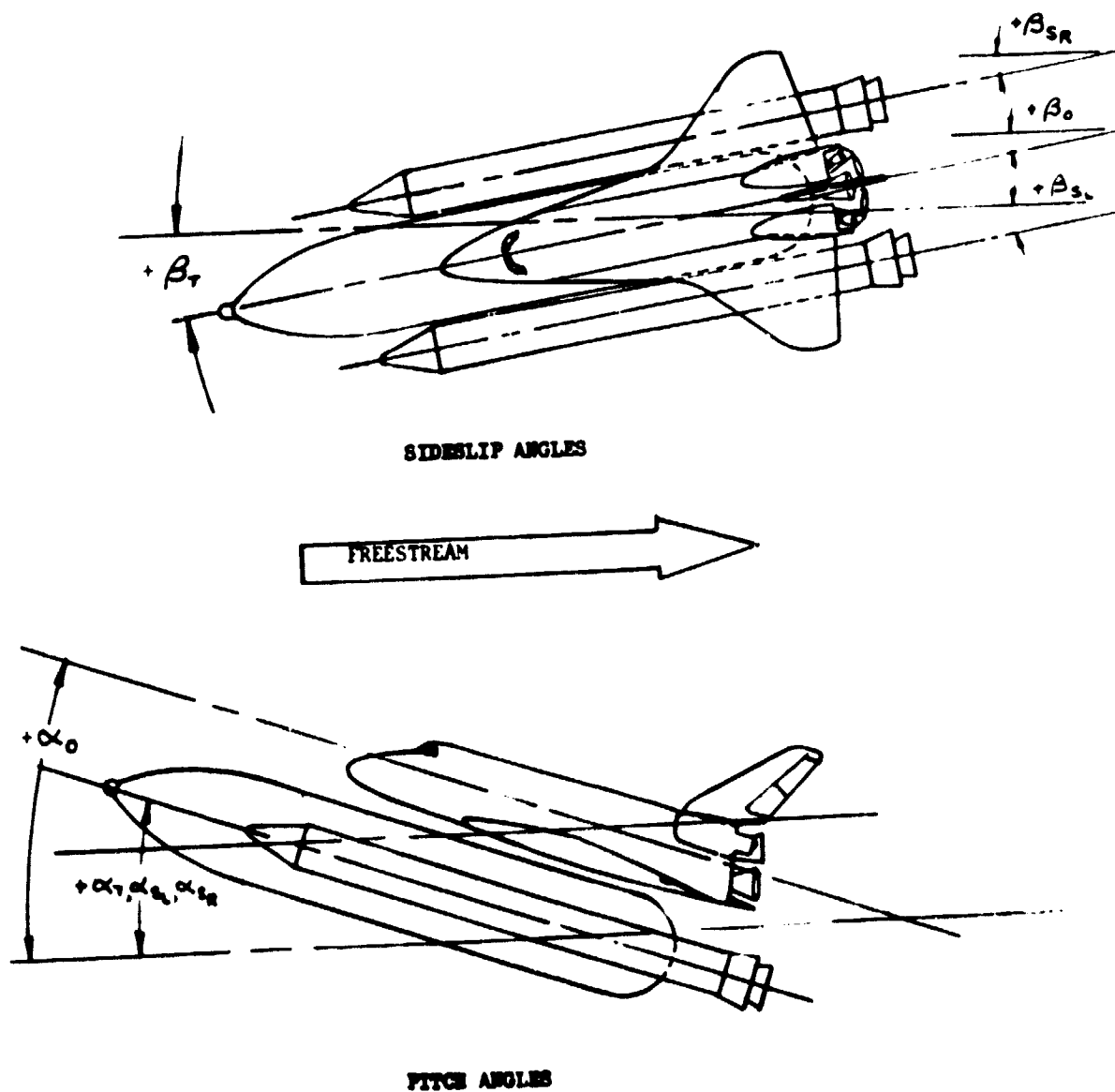
$L_3 = 1789.60$ IN. * PRESSURE TAPS AT 77.5 IN. RADIUS ON THE STRUCTURAL RINGS

Notes

1. Positive directions of force coefficients, moment coefficients, and angles are indicated by arrows
2. For clarity, origins of wind and stability axes have been displaced from the center of gravity

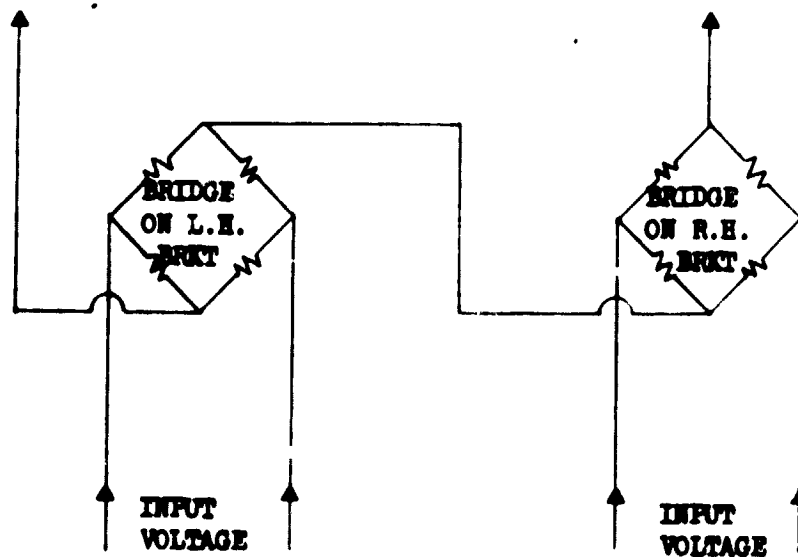


a. Forces and Moments
Figure 1. - Axis Systems.

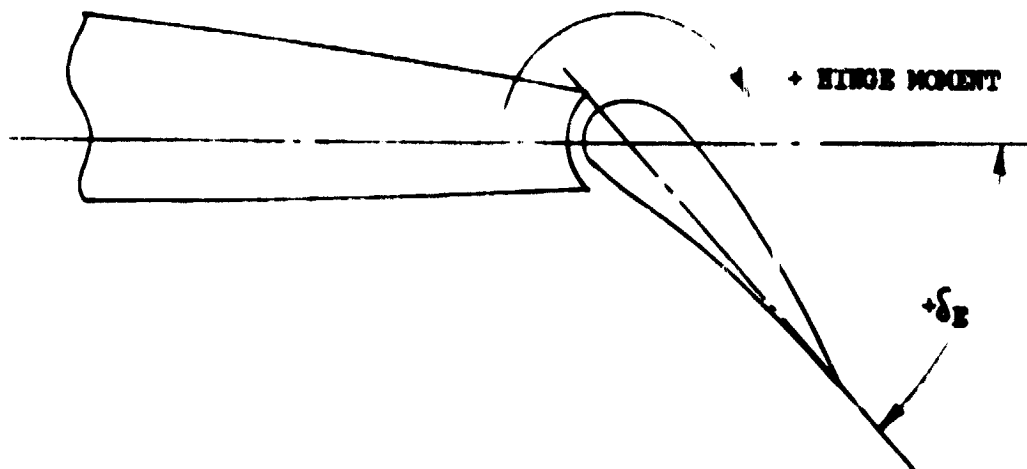


b. Model Attitude Definition
Figure 1. - Continued.

OUTPUT VOLTAGE

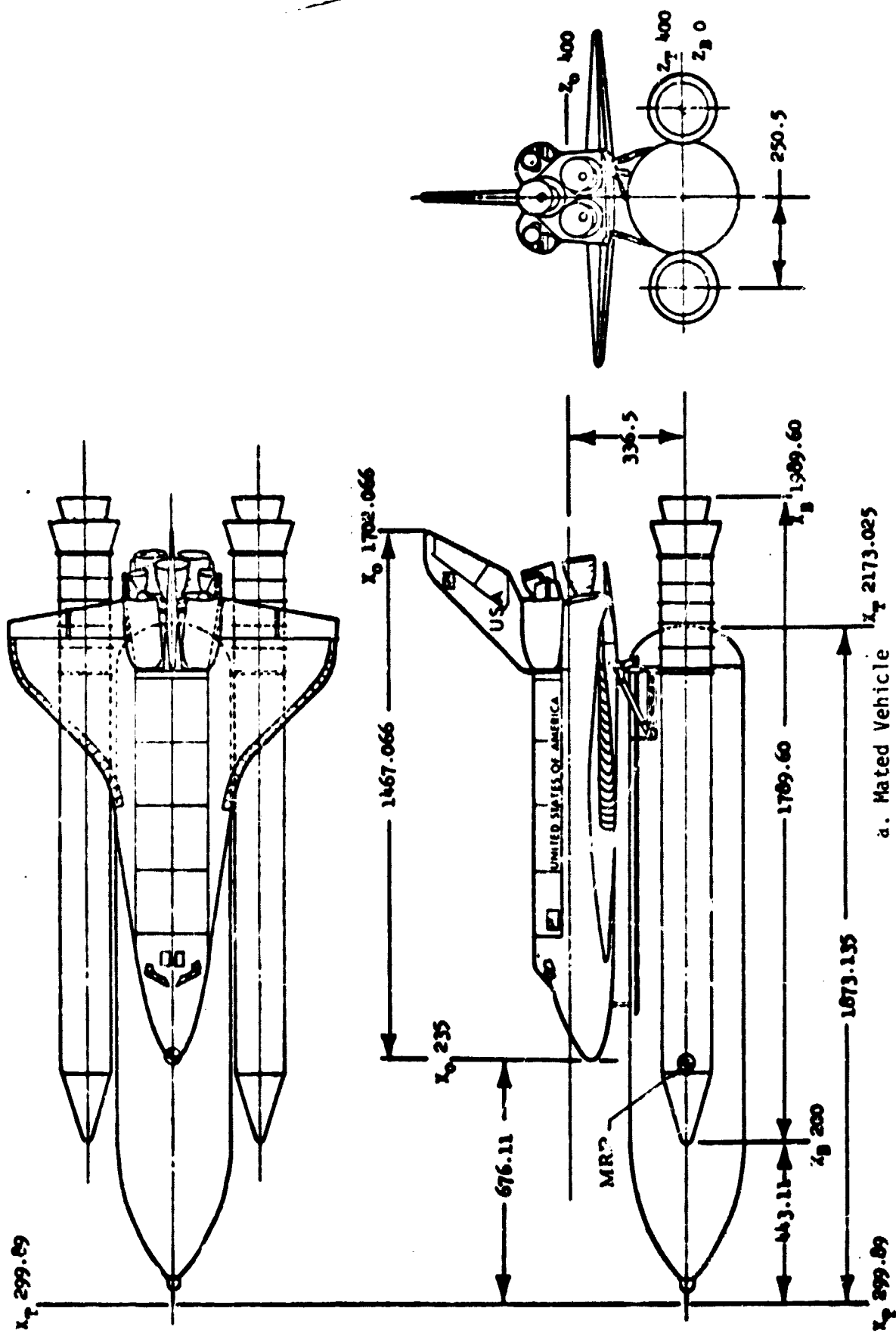


ELEVON HINGE MOMENT WIRING DIAGRAM
TYPICAL FOR INBOARD AND OUTBOARD ELEVONS



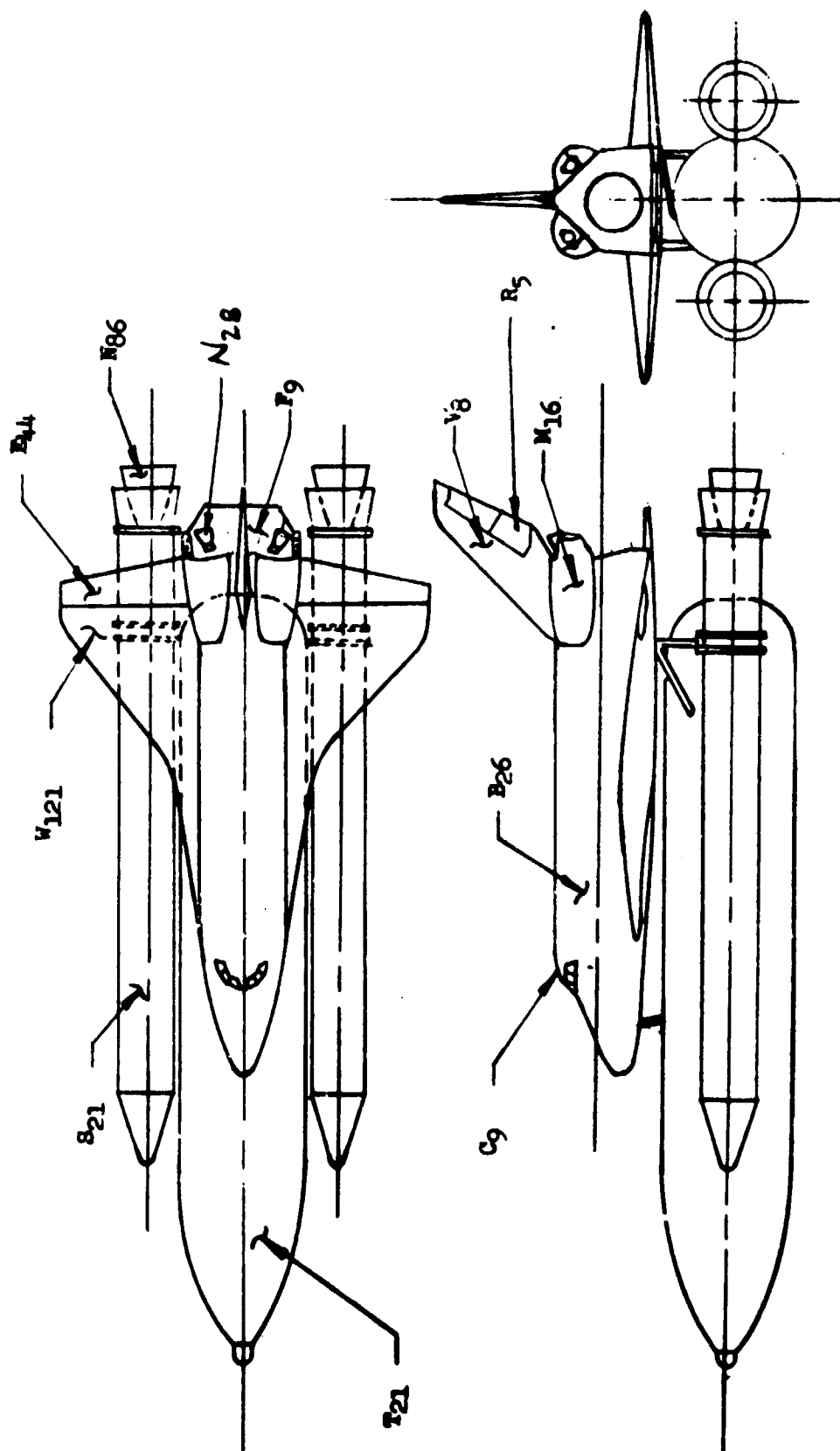
c. Elevon Electrical Hookup and Sign Conventions

Figure 1. - Concluded.



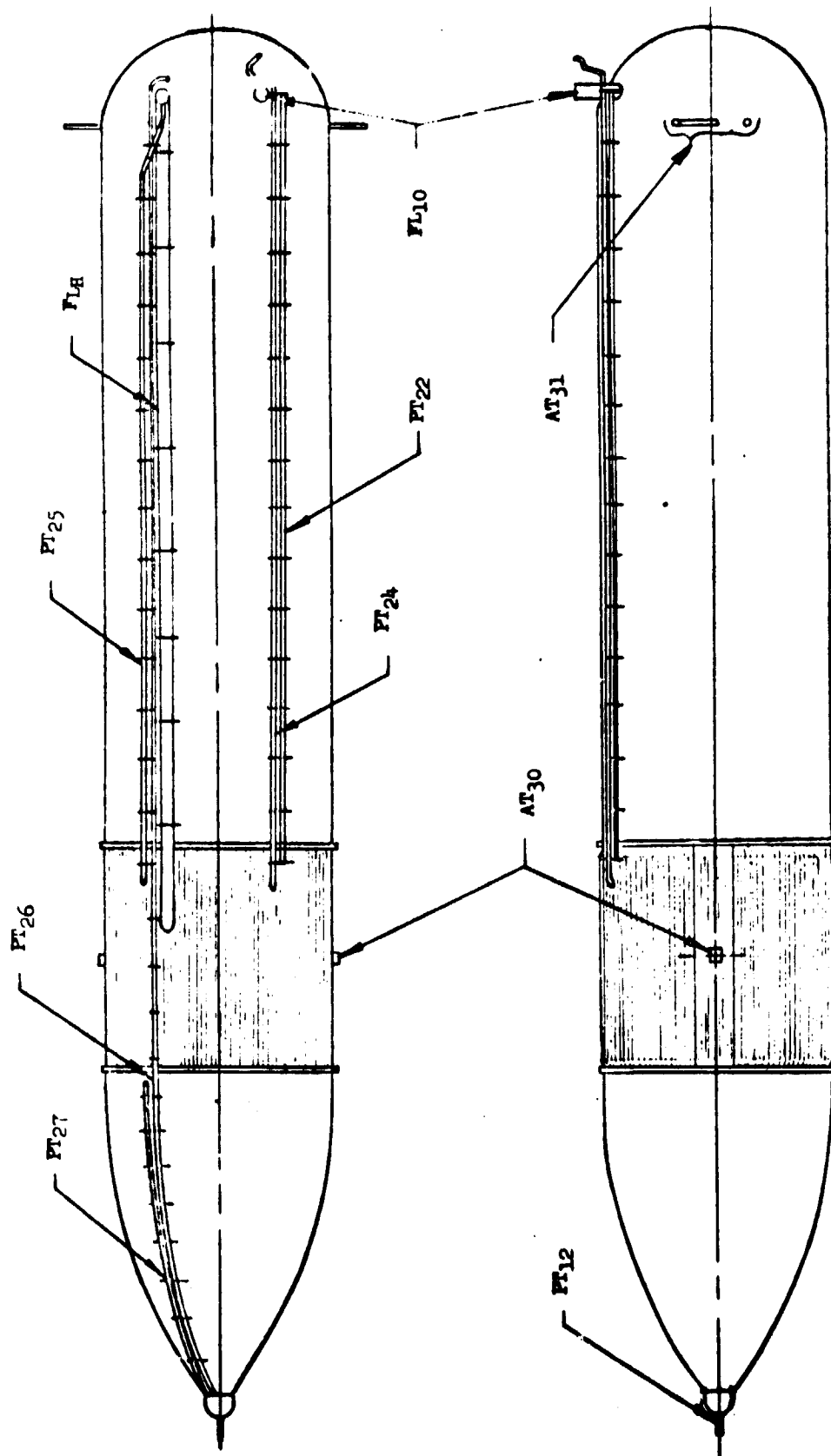
a. Mated Vehicle

Figure 2. - Model sketches.



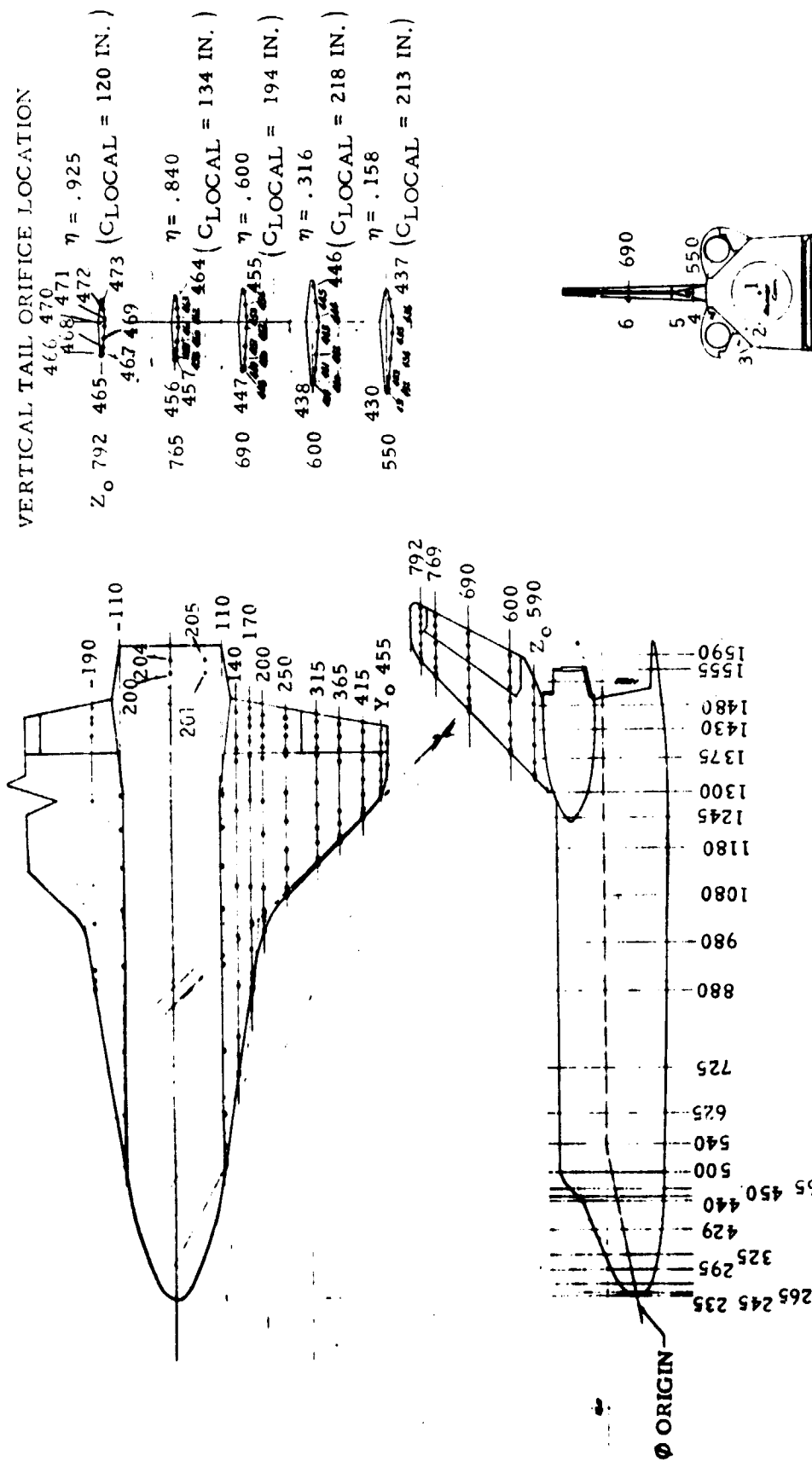
b. LVA Integrated Vehicle Three View

Figure 2. - Continued.



c. (T₂₈) External Tank Protuberances

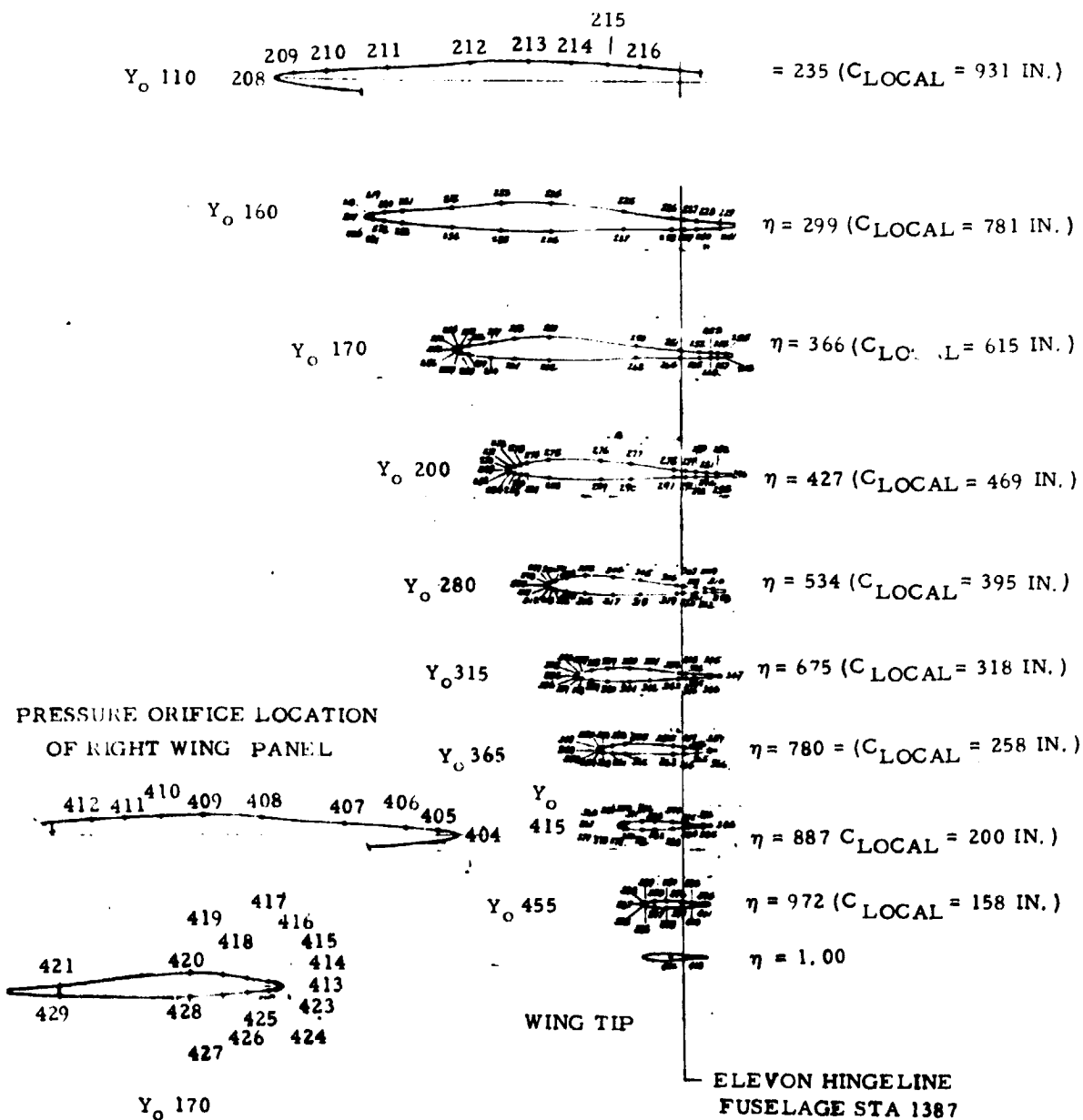
Figure 2. - Continued.



d. Orbiter Upper Wing and Vertical Tail Pressure Tap Locations

Figure 2. - Continued.

PRESSURE ORIFICE LOCATION OF LEFT WING PANEL

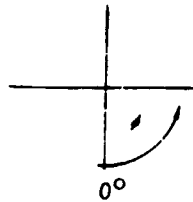


e. Orbiter Wing Pressure Tap Locations

Figure 2. - Continued.

FUSELAGE ORIFICE LOCATION

NOTE:
VIEW LOOKING AFT

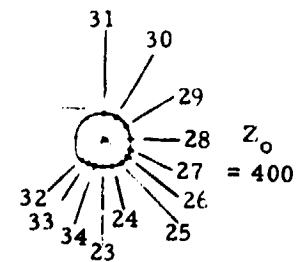
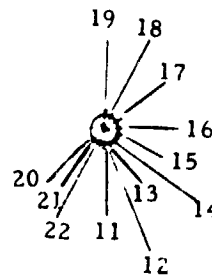
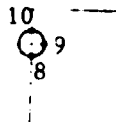


FUS STA 235

FUS STA 245

FUS STA 265

FUS STA 295

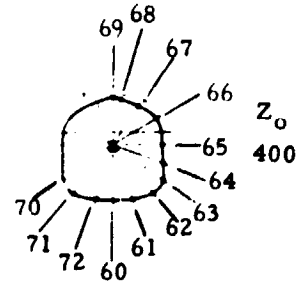
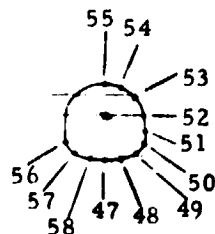
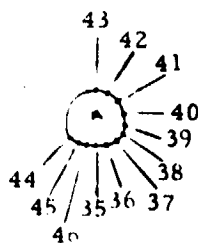


FUS STA 325

FUS STA 380

FUS STA 440

FUS STA 450

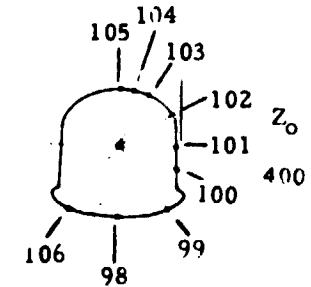
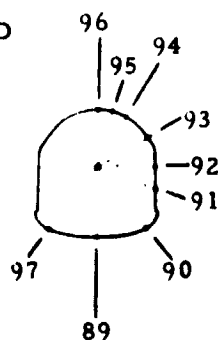
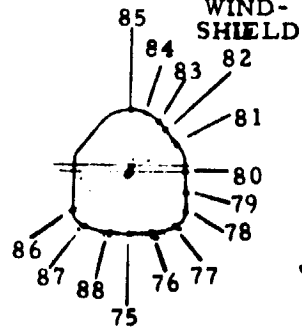
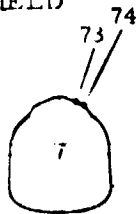


FUS STA 465
WINDSHIELD

FUS STA 500
WINDSHIELD

FUS STA 560

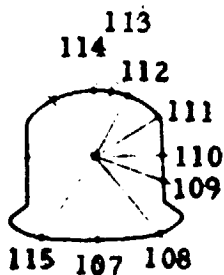
FUS STA 625



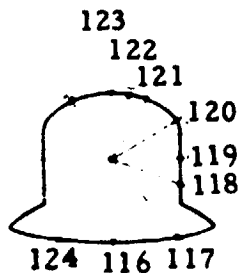
f. Orbiter Forward Fuselage Pressure Tap Locations

Figure 2. - Continued.

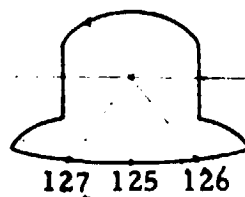
FUS STA



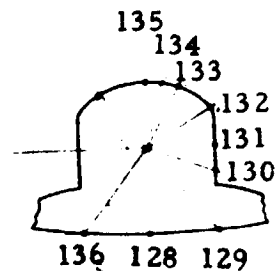
FUS STA



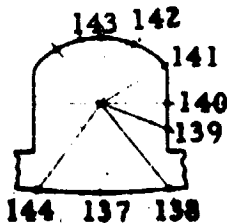
FUS STA 980



FUS STA 1080



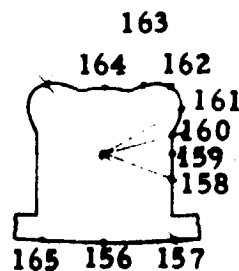
FUS STA 1180



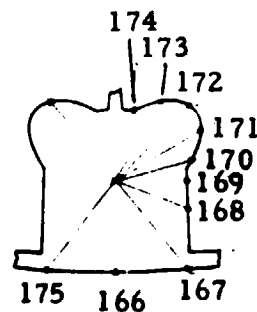
FUS STA 1245



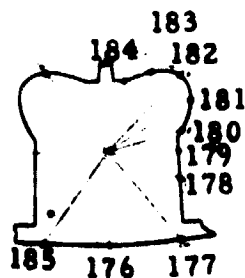
FUS STA 1300



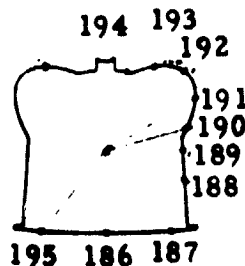
FUS STA 1375



FUS STA 1430



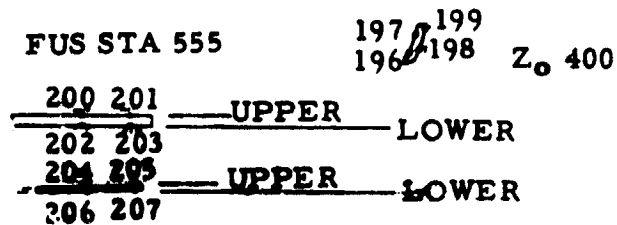
FUS STA 1480



BODY FLAP

FUS STA 1830

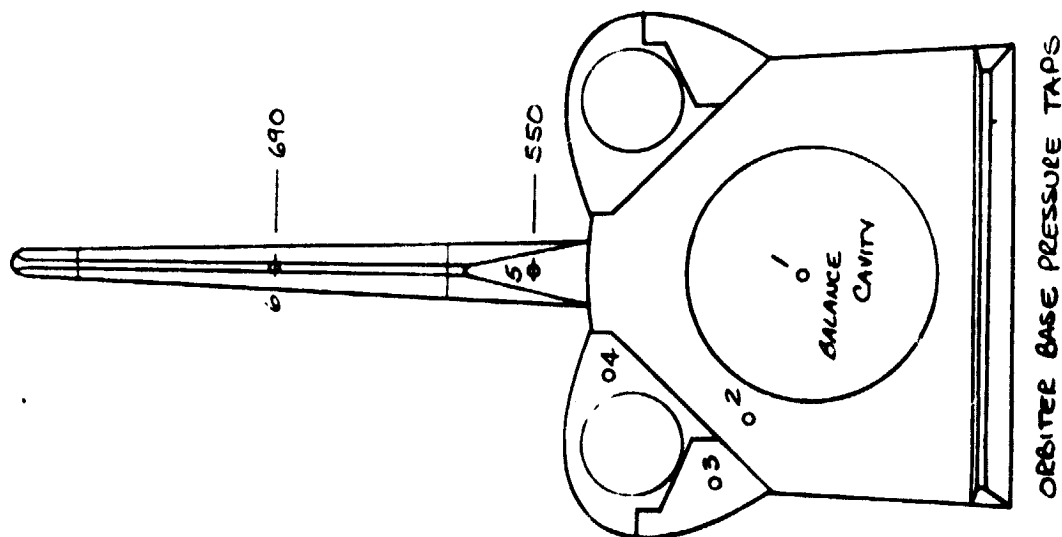
FUS STA 555



FUS STA 590

g. Orbiter Aft Fuselage Pressure Tap Locations

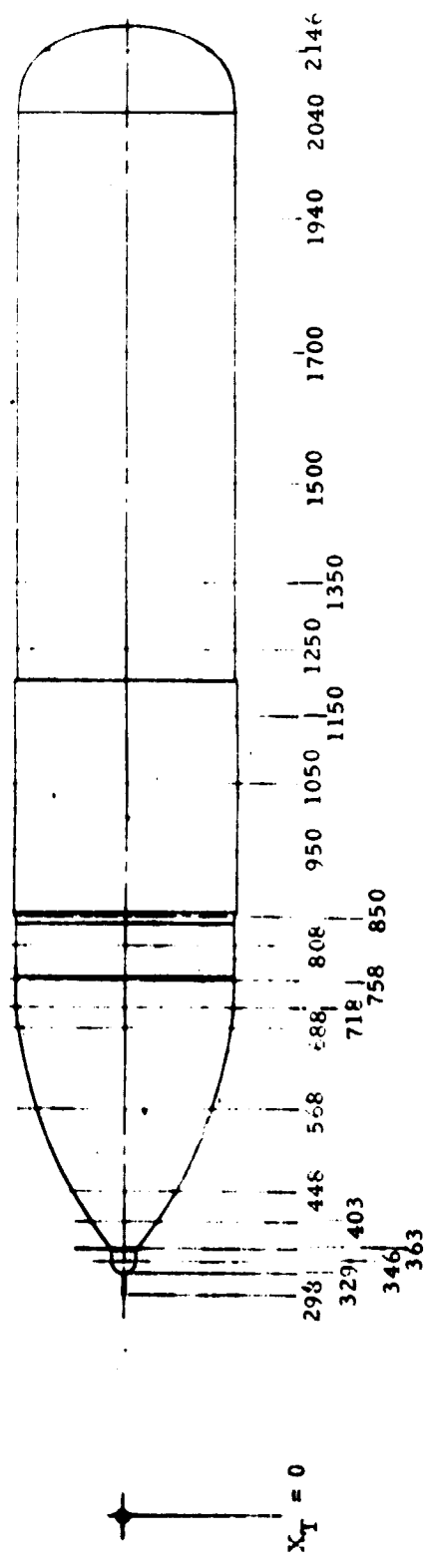
Figure 2. - Continued.



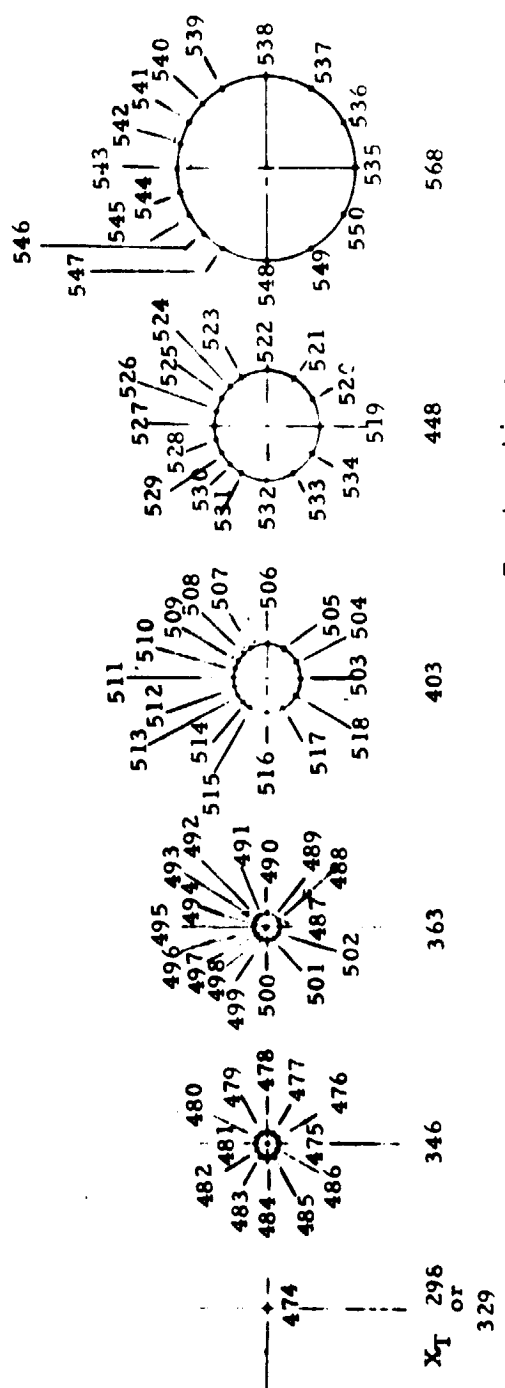
h. Orbiter Base Pressure Tap Locations

ORBITER ~ X0		X0/L0		ϕ ~ 056.	
FULL SCALE	MODEL SCALE	0	40	NO TAPS	Σ NO TAPS
1555U	46.65	200	201	2	2
1555L	46.65	202	203	2	4
1590U	47.70	204	205	2	6
1590L	47.70	206	207	2	8

Figure 2. - Continued.

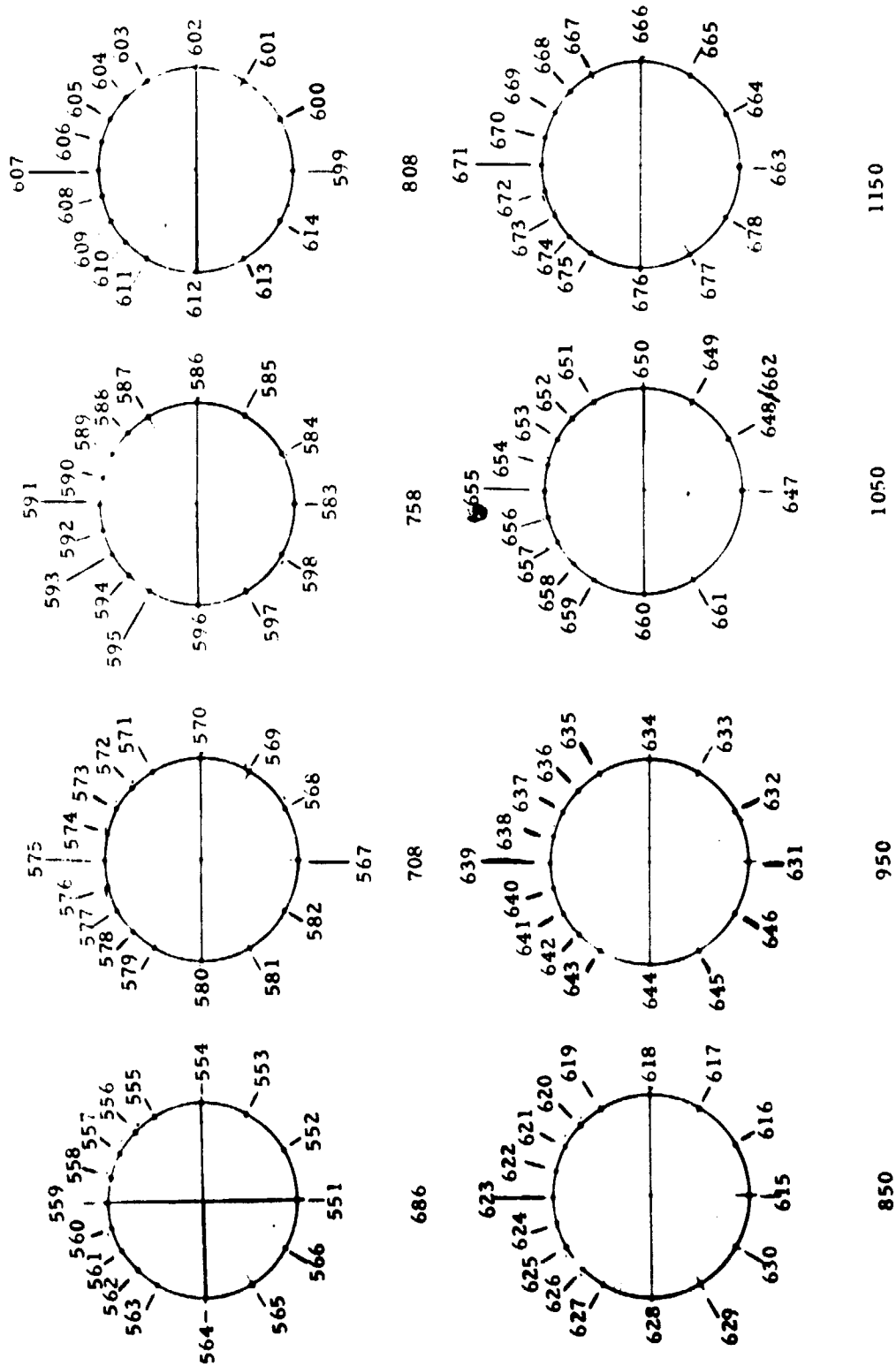


VIEW FORWARD
LOOKING AFT



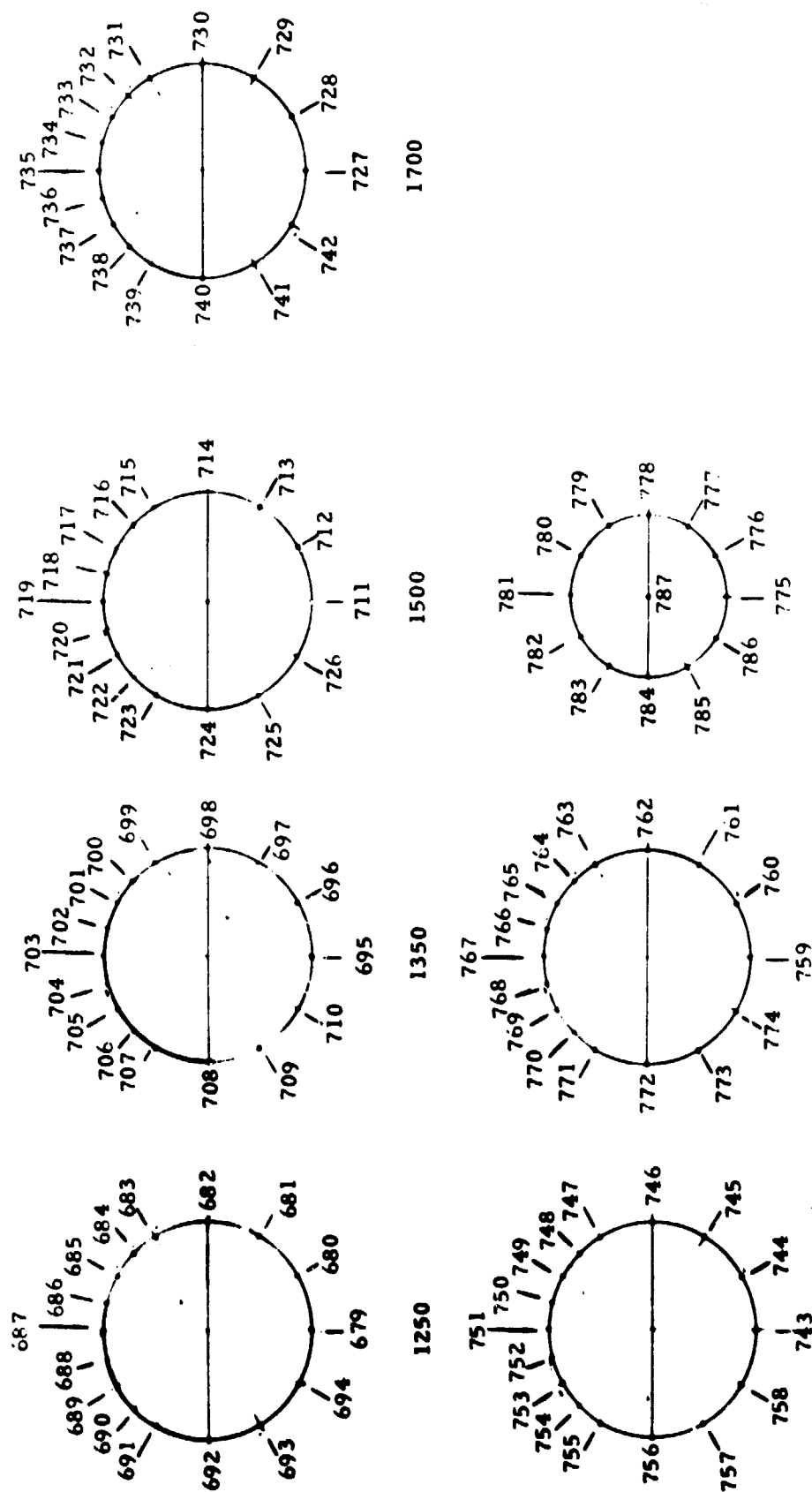
i. External Tank Forward Pressure Tap Locations

Figure 2. - Continued.



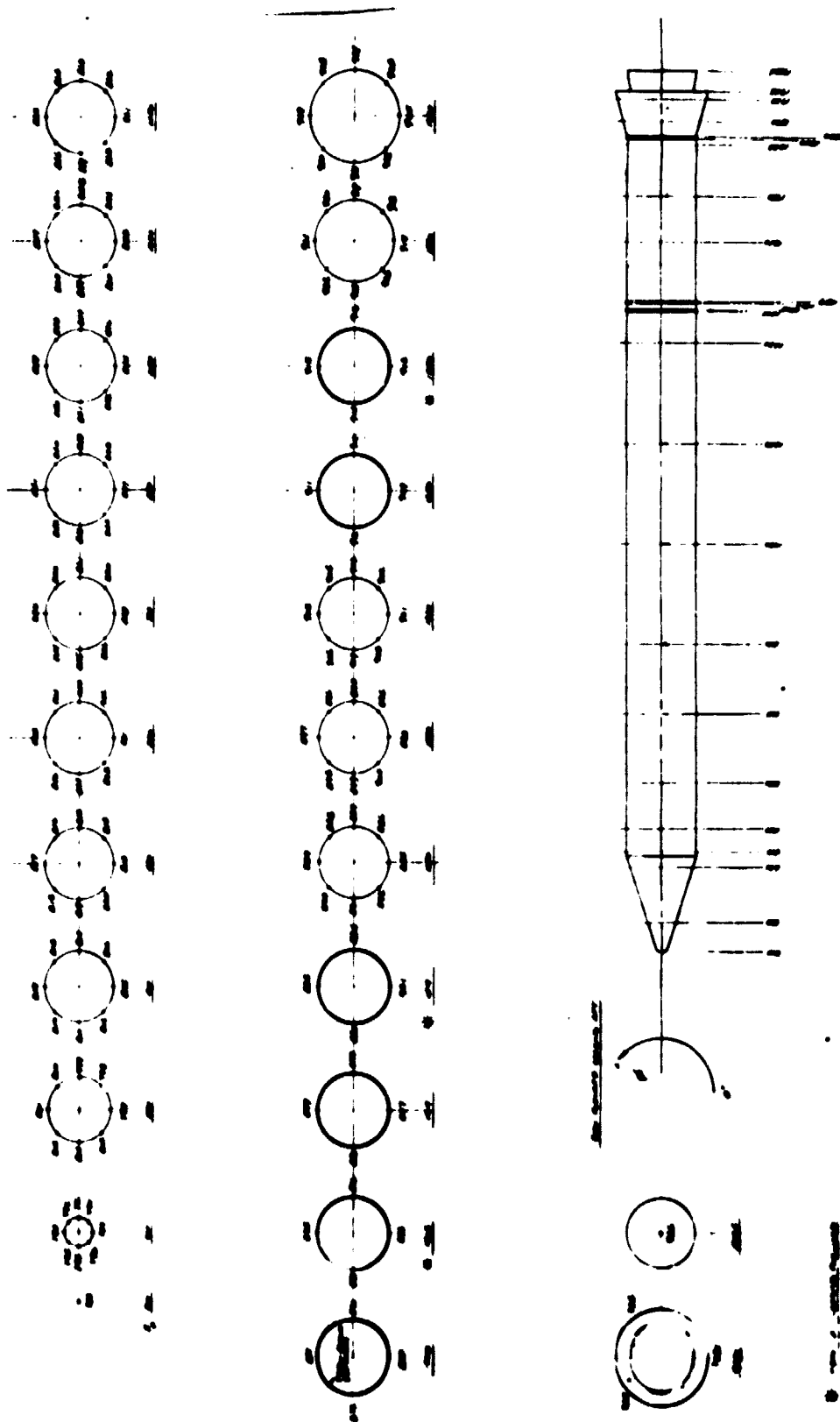
j. External Tank Mid Pressure Tap Locations

Figure 2. - Continued.



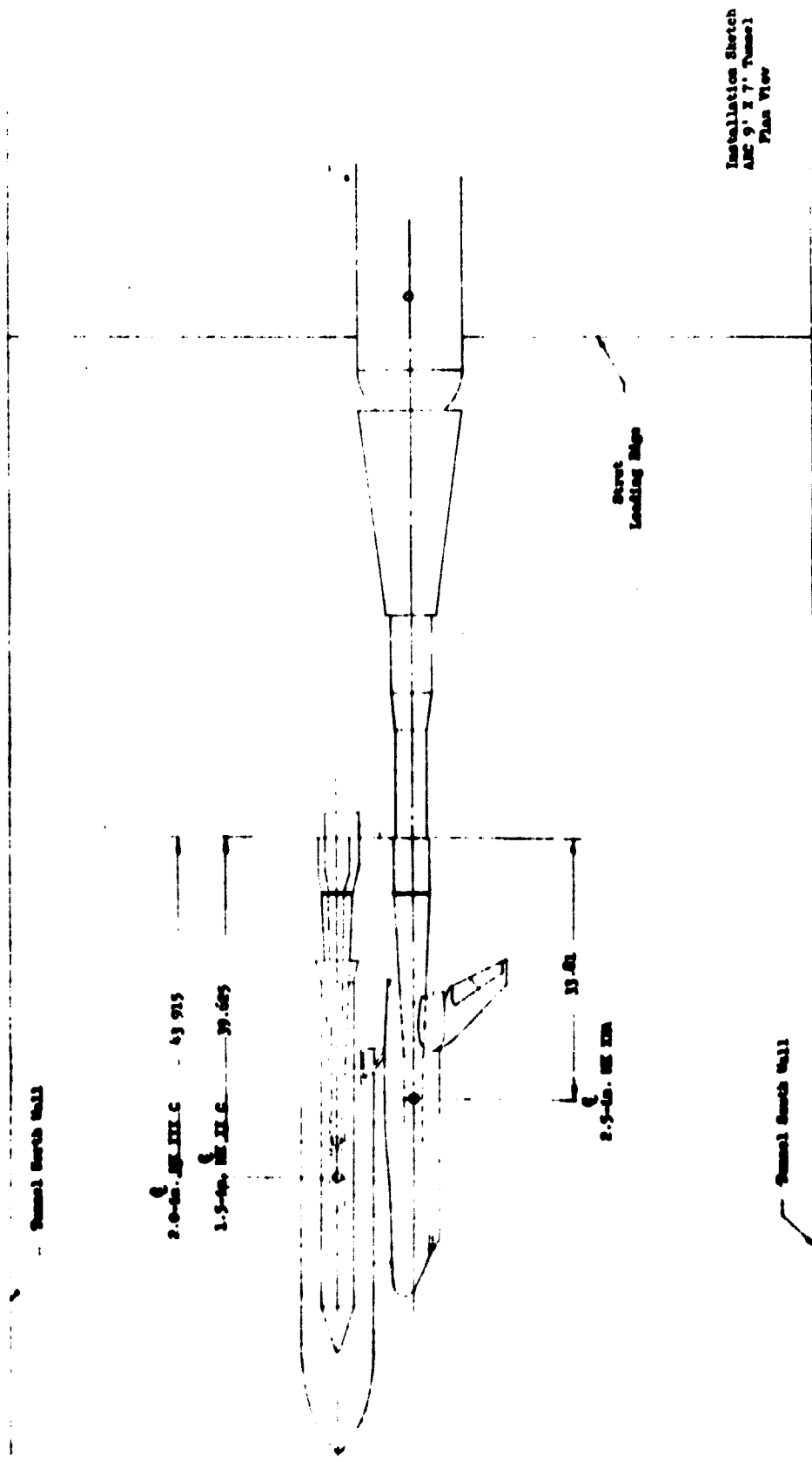
k. External Tank Aft Pressure Tap Locations

Figure 2. - Continued.



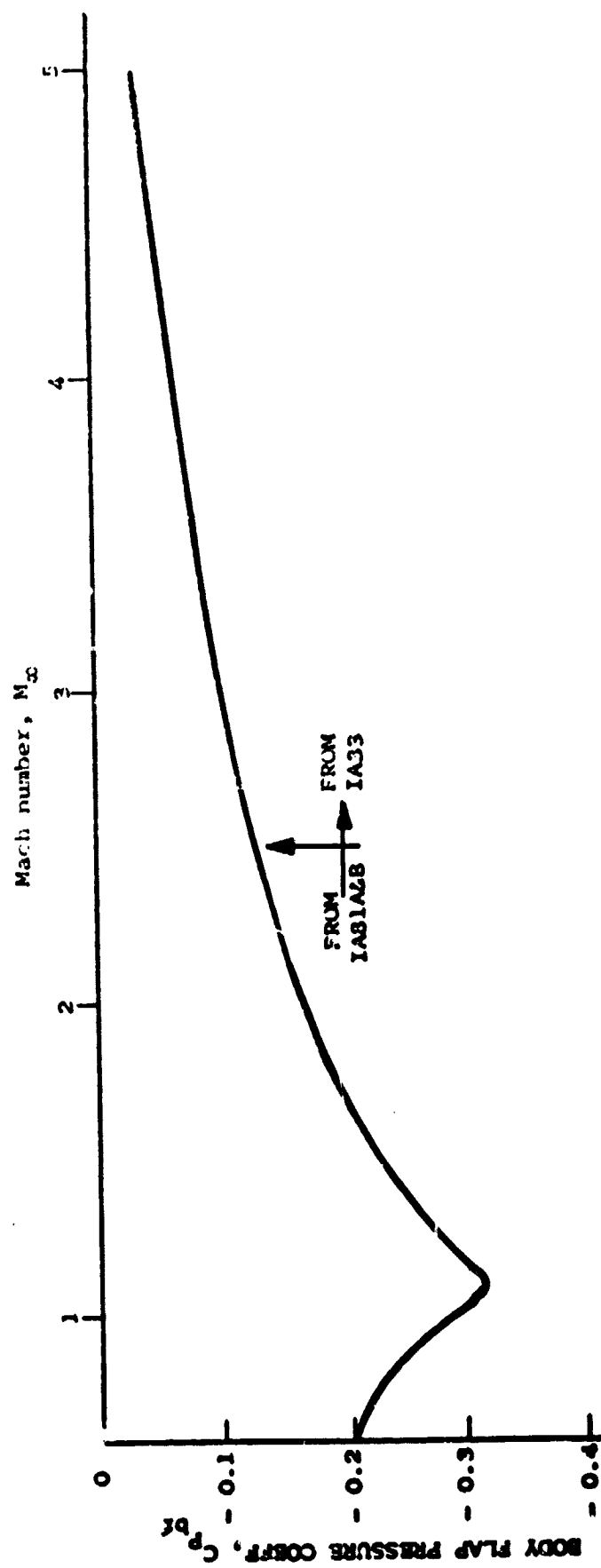
1. SRB Pressure Tap Locations

Figure 2. - Continued.



m. Model Installation Side View

Figure 2. - Continued.



o. Orbiter Body Flap Pressure Coefficient.

Figure 2. - Concluded.



a. Side View

Figure 3. - Model photographs.



b. Rear View

Figure 3. - Concluded.

DATA FIGURES

VOLUME 1 Pages 1-808 (Force)

VOLUME 2 Pages 809-1663 (Pressure)

REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-19	ELV-08	MACH	SPDBRK	REFERENCE INFORMATION
(MET035)	AMES97-019(IAB1) LVAP	8.000	-4.000	1.550	.000	SREF 2690.0000 SO.FT.
(MET135)	AMES97-019(IAB1) LVAP	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(MET135)	AMES97-019(IAB1) LVAP	8.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(MET135)	AMES97-019(IAB1) LVAP	8.000	-4.000	1.550	.000	XMRP 976.0000 IN.
(MET135)	AMES97-019(IAB1) LVAP	8.000	-4.000	1.550	.000	YMRP .0000 IN.
(MET135)	AMES97-019(IAB1) LVAP	8.000	-4.000	1.550	.000	ZMRP 400.0000 IN.
						SCALE .0300

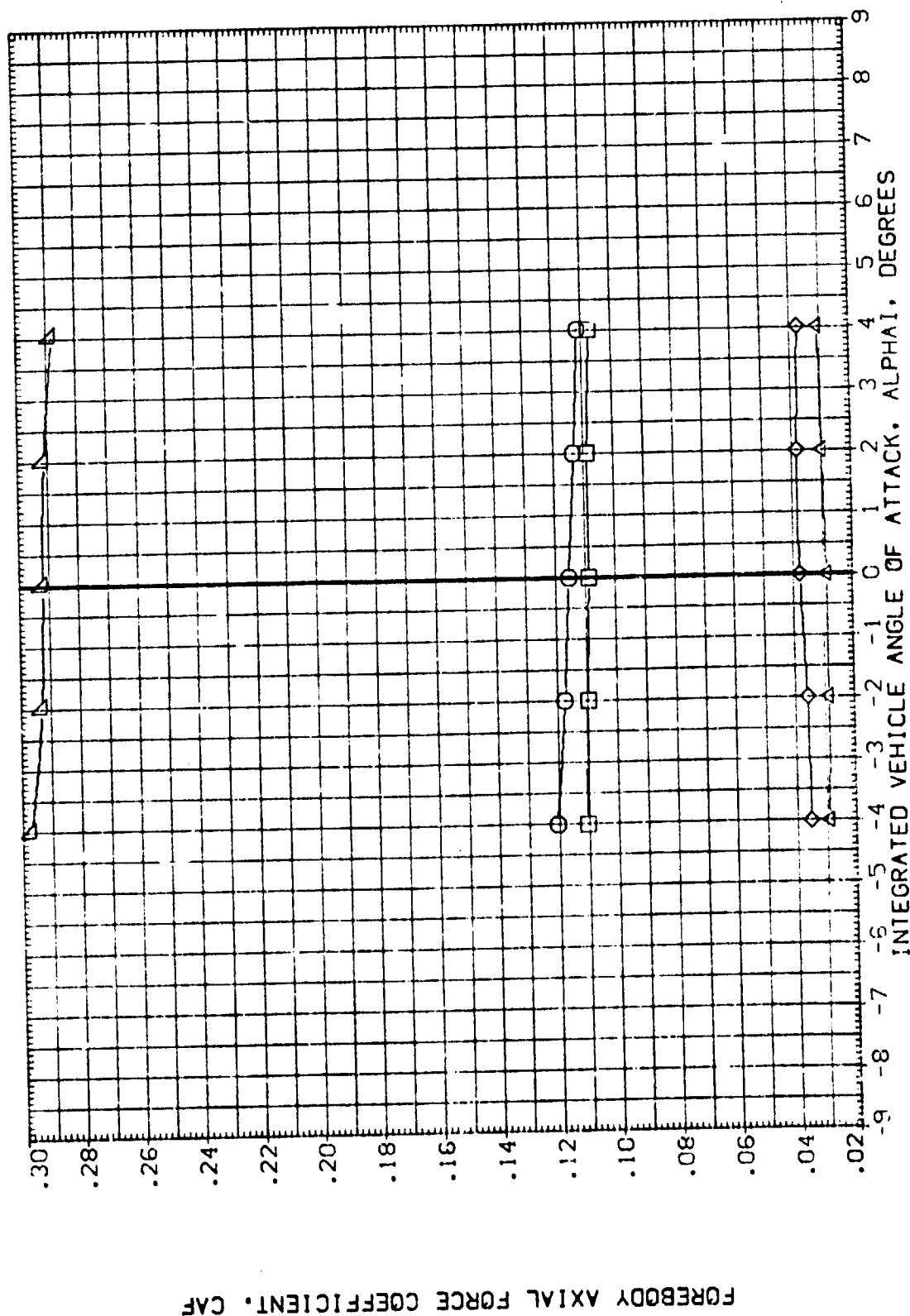


FIG. 4 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(MET135)	AMES97-019(1A81) LVAP CPB11EP-ALL HL SEALED	8.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(MET135)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(MET135)	AMES97-019(1A81) LVAP L-SP3 - ALL HL SEALED	8.000	-4.000	1.550	.000	BREF 1297.0000 IN. XT
(MET135)	AMES97-019(1A81) LVAP R-2B - ALL HL SEALED	8.000	-4.000	1.550	.000	YMRP 976.0000 IN. YT
(MET135)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	-4.000	1.550	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

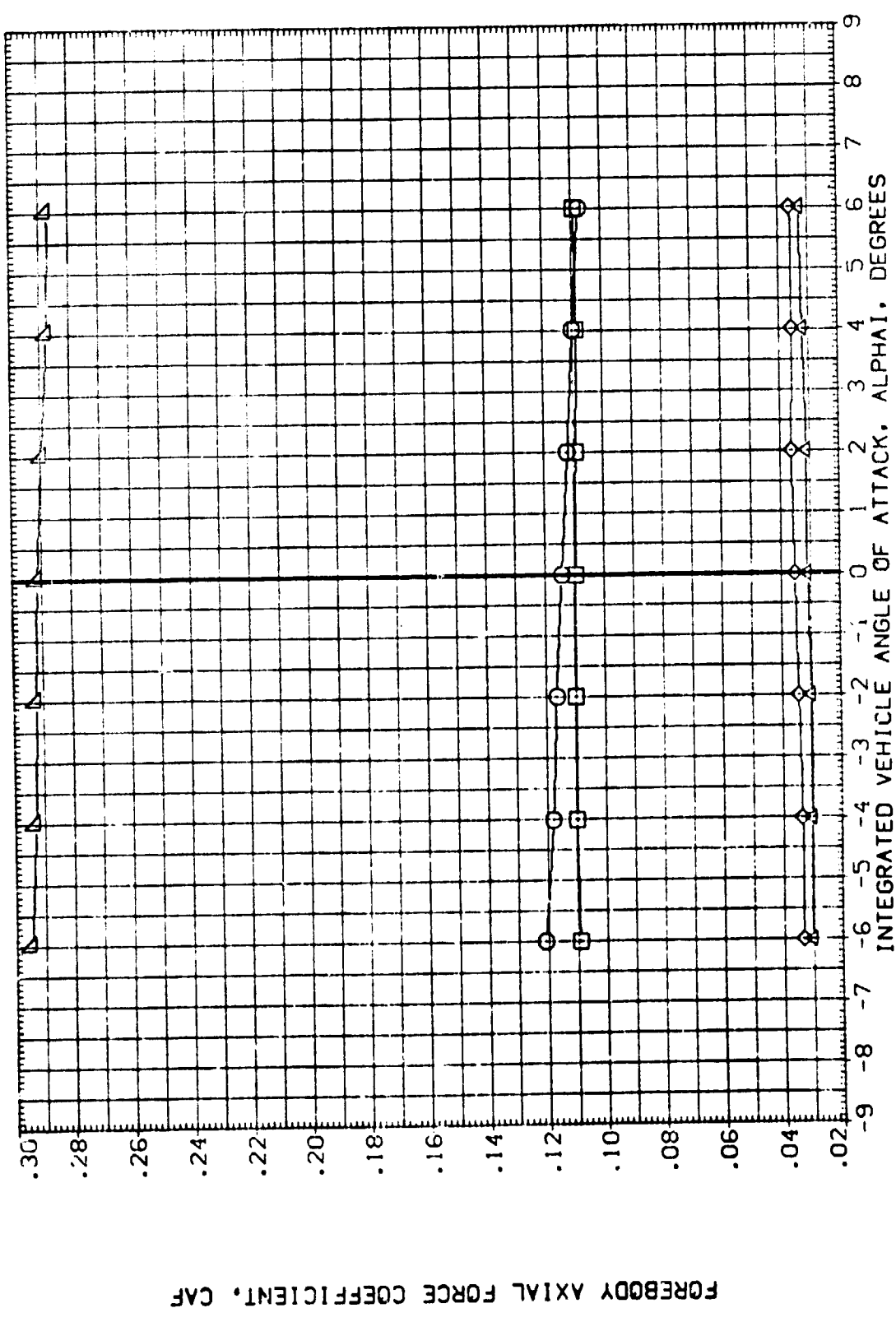


FIG. 4 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4

(B)BETA1 = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(MET035)	AMES97-019(1A81) LVAP	8.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(MET135)	AMES97-019(1A81) LVAP	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(MET135)	AMES97-019(1A81) LVAP	8.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(MET135)	AMES97-019(1A81) LVAP	8.000	-4.000	1.550	.000	XMRP 976.0000 IN.
(MET135)	AMES97-019(1A81) LVAP	8.000	-4.000	1.550	.000	YMRP 400.0000 IN.
(MET135)	AMES97-019(1A81) LVAP	8.000	-4.000	1.550	.000	ZMRP 400.0000 IN.
						SCALE .0300

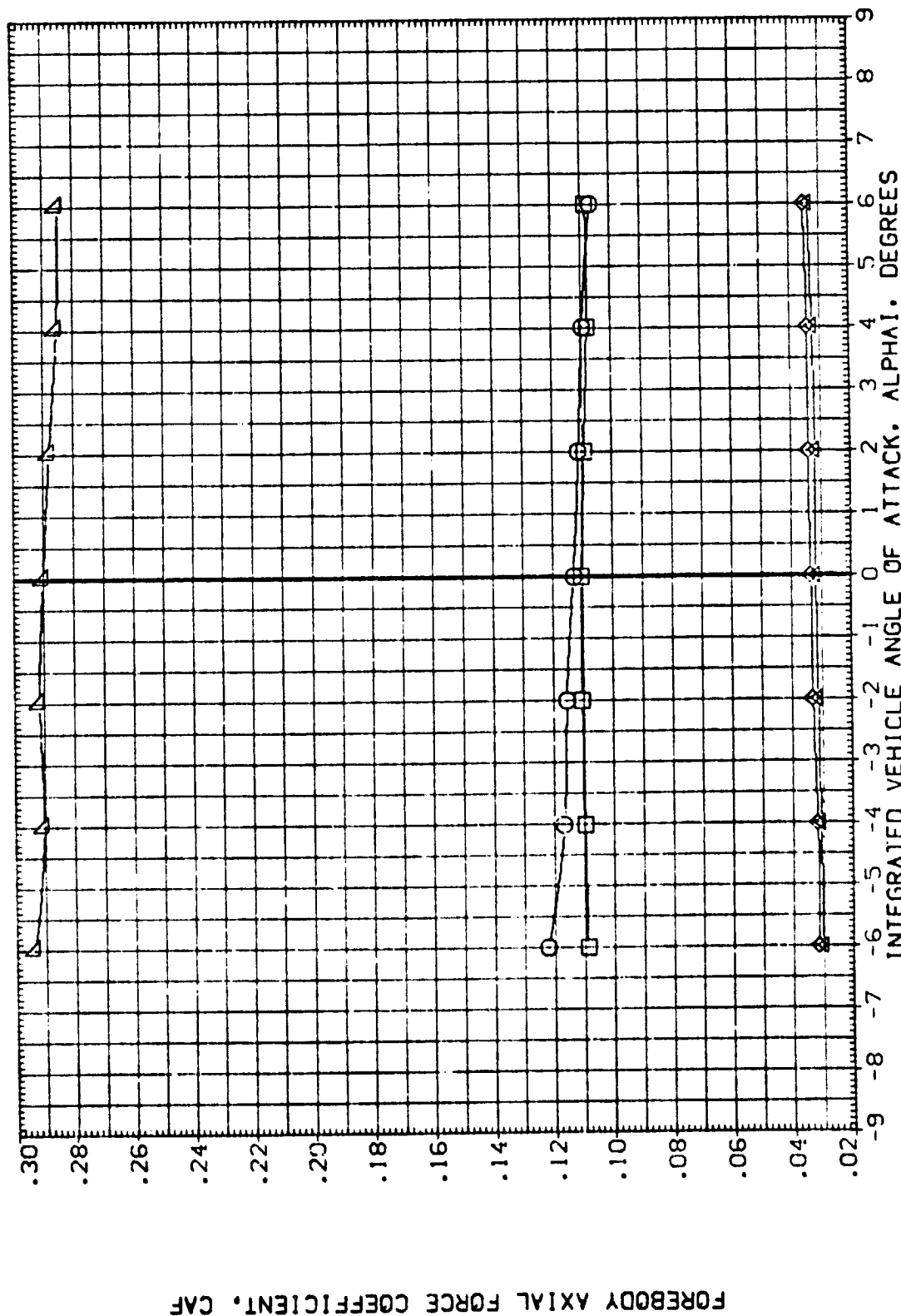


FIG. 4 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4

(C)BETA1 = -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDGRK	REFERENCE INFORMATION
(MET135)	AMES97-019(1A81) LVAP CRBITTER-ALL HL SEALED	8.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(MET135)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(MET135)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(MET135)	AMES97-019(1A81) LVAP R-LRB ALL HL SEALED	8.000	-4.000	1.550	.000	YMRP 976.0000 IN.
(MET135)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	-4.000	1.550	.000	ZMRP 400.0000 IN.
						SCALE .0300

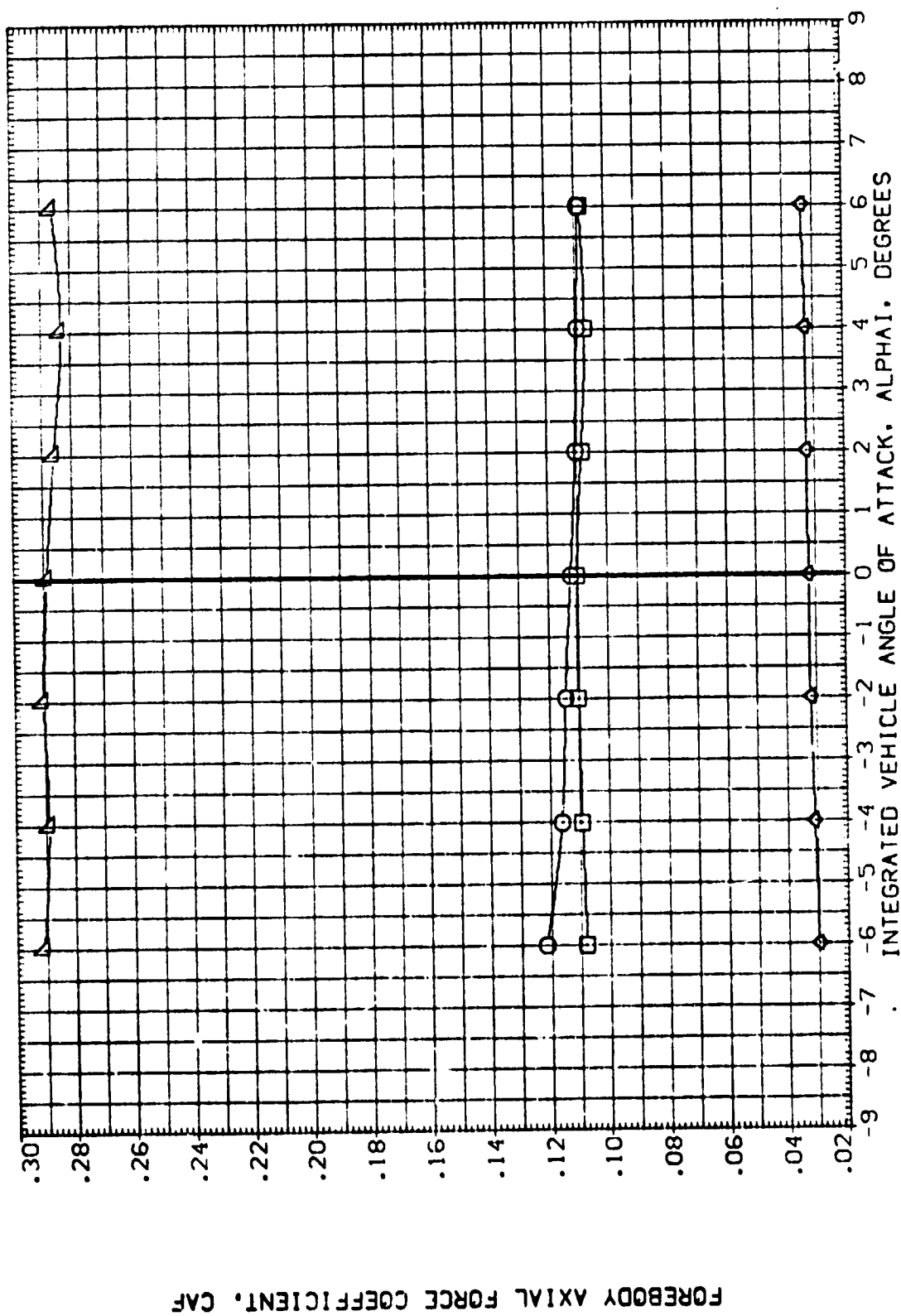


FIG. 4 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(MET135)	AMES97-0191(ARI) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(MET135)	AMES97-0191(ARI) LVAP TANK - ALL HL SEALED	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(MET135)	AMES97-0191(ARI) LVAP L-303 - ALL HL SEALED	8.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(MET135)	AMES97-0191(ARI) LVAP R-108 - ALL HL SEALED	8.000	-4.000	1.550	.000	XMRP 976.0000 IN.
(MET135)	AMES97-0191(ARI) LVAP INT-104 - ALL HL SEALED	8.000	-4.000	1.550	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

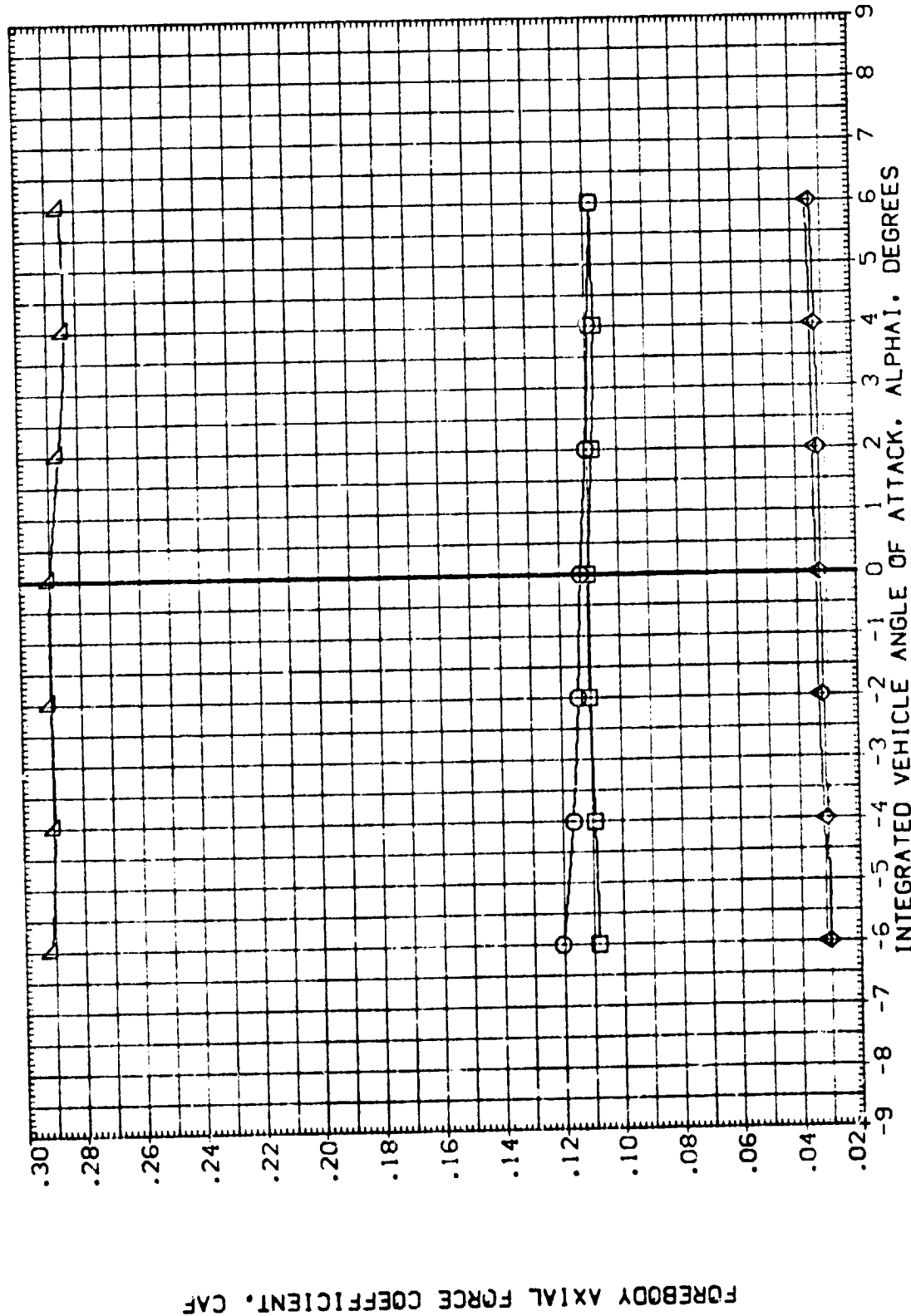


FIG. 4 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-1B	MACH	SPDRBK	REFERENCE INFORMATION
(MET035)	AMES97-019(IAB1) LVAP CRBITTER-ALL HL SEALED	8.000	-4.000	1.550	.000	SREF 2690.0000 SO.FT.
(MET135)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(MET135)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	1.550	.000	GREF 1297.0000 IN. XT
(MET135)	AMES97-019(IAB1) LVAP R-LPB - ALL HL SEALED	8.000	-4.000	1.550	.000	X-RP 976.0000 IN. YT
(MET135)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	1.550	.000	Y-RP 400.0000 IN. ZT
						ZMRP .0300
						SCALE

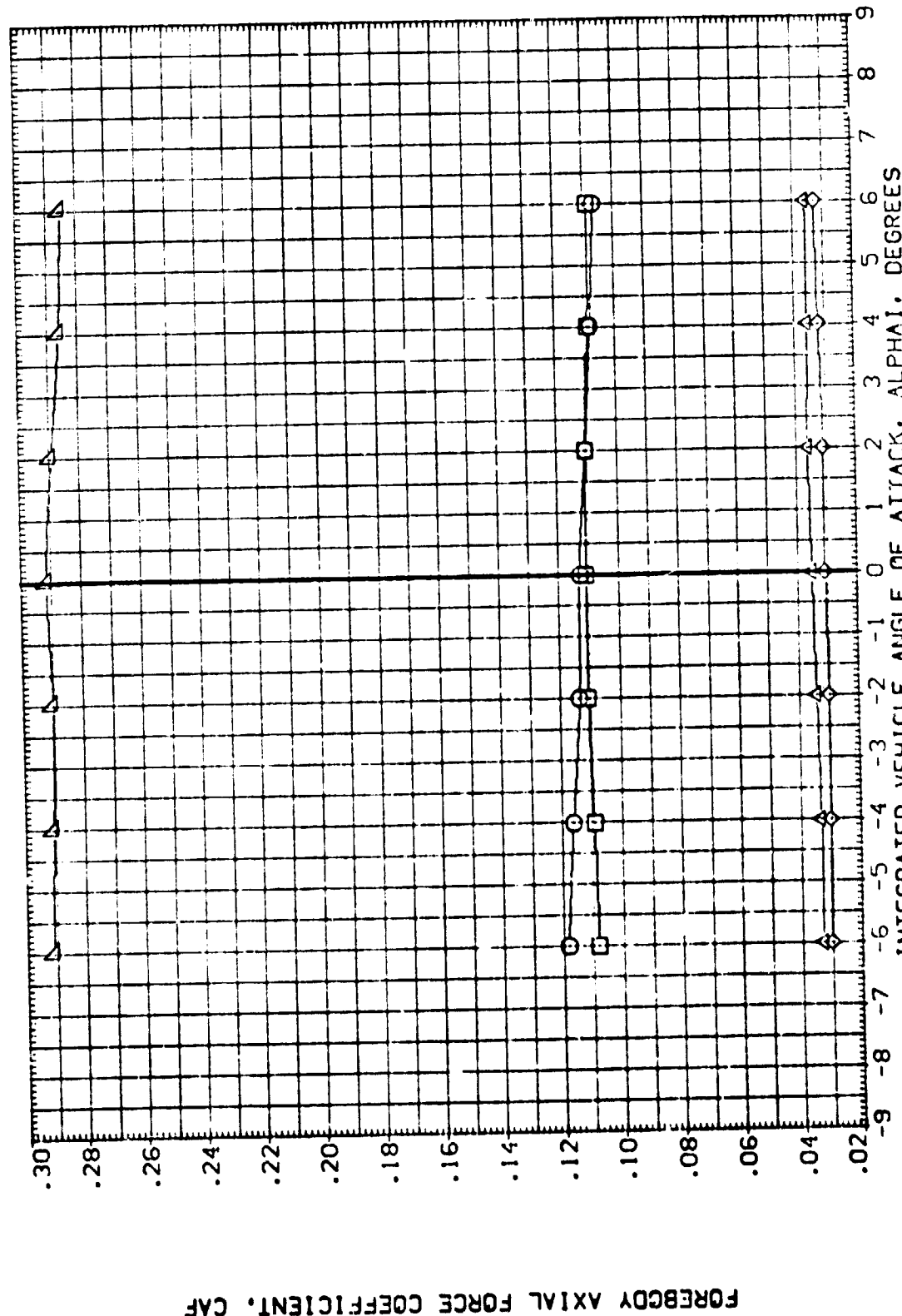


FIG. 4 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M-1.55 DEV=8/-4

FOR BODY AXIAL FORCE COEFFICIENT, CAF

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-19	ELV-09	MACH	SPCBK	REFERENCE INFORMATION	SO.F.T.
(MET035)	AMES37-019(1A81) LVAP CRBITER-ALL HL SEALED	8.000	-4.000	1.550	.000	SREF	2690.0000
(MET035)	AMES37-019(1A81) LVAP TANK - ALL HL SEALED	8.000	-4.000	1.550	.000	LREF	1297.0000
(MET035)	AMES37-019(1A81) LVAP L-SPB - ALL HL SEALED	8.000	-4.000	1.550	.000	DRIF	1297.0000
(MET035)	AMES37-019(1A81) LVAP R-SPB - ALL HL SEALED	8.000	-4.000	1.550	.000	XMRP	976.0000
(MET035)	AMES37-019(1A81) LVAP IN-SPB - ALL HL SEALED	8.000	-4.000	1.550	.000	ZMRP	.0000
(MET035)	AMES37-019(1A81) LVAP IN-SPB - ALL HL SEALED	8.000	-4.000	1.550	.000	SCAL	400.0000
							.0300

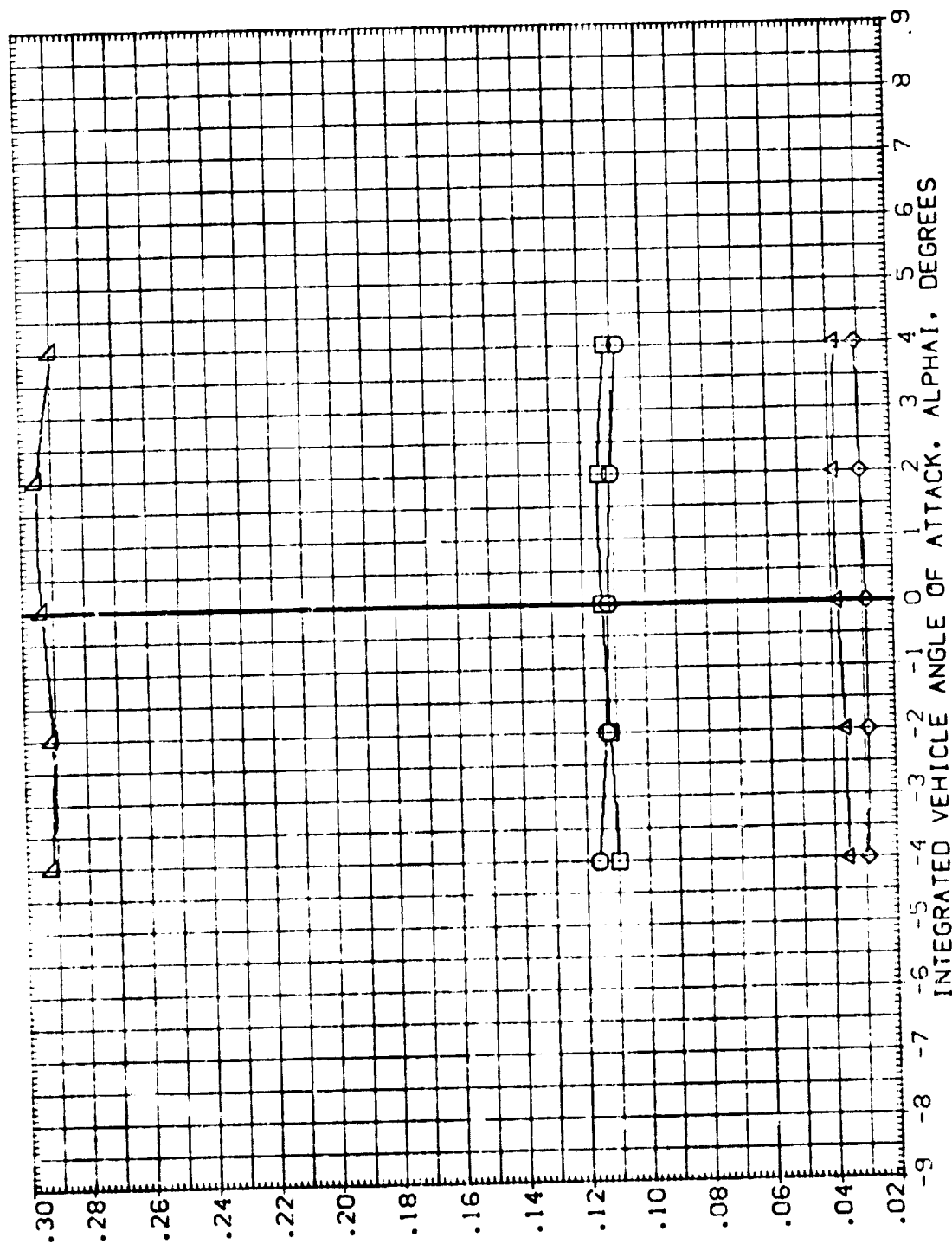


FIG. 4 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4

FOREBODY NORMAL FORCE COEFFICIENT, CNF

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDRK	REFERENCE INFORMATION
(MET035)	AMES37-019(IAB1) LVAP ORBITTER-ALL ML SEALED	8.000	-4.000	1.550	.000	SREF 2650.0000 SQ.FT.
(MET135)	AMES37-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	-4.000	1.550	.030	LREF 1297.0000 IN.
(MET135)	AMES37-019(IAB1) LVAP L-SRB - ALL ML SEALED	8.000	-4.000	1.550	.000	SREF 1297.0000 IN.
(MET135)	AMES37-019(IAB1) LVAP 3-LRB ALL ML SEALED	8.000	-4.000	1.550	.000	YMRP 276.0000 IN. XT
(MET135)	AMES37-019(IAB1) LVAP INT VEH ALL ML SEALED	8.000	-4.000	1.550	.000	YMRP 400.0000 IN. YT
						SCALE .0300

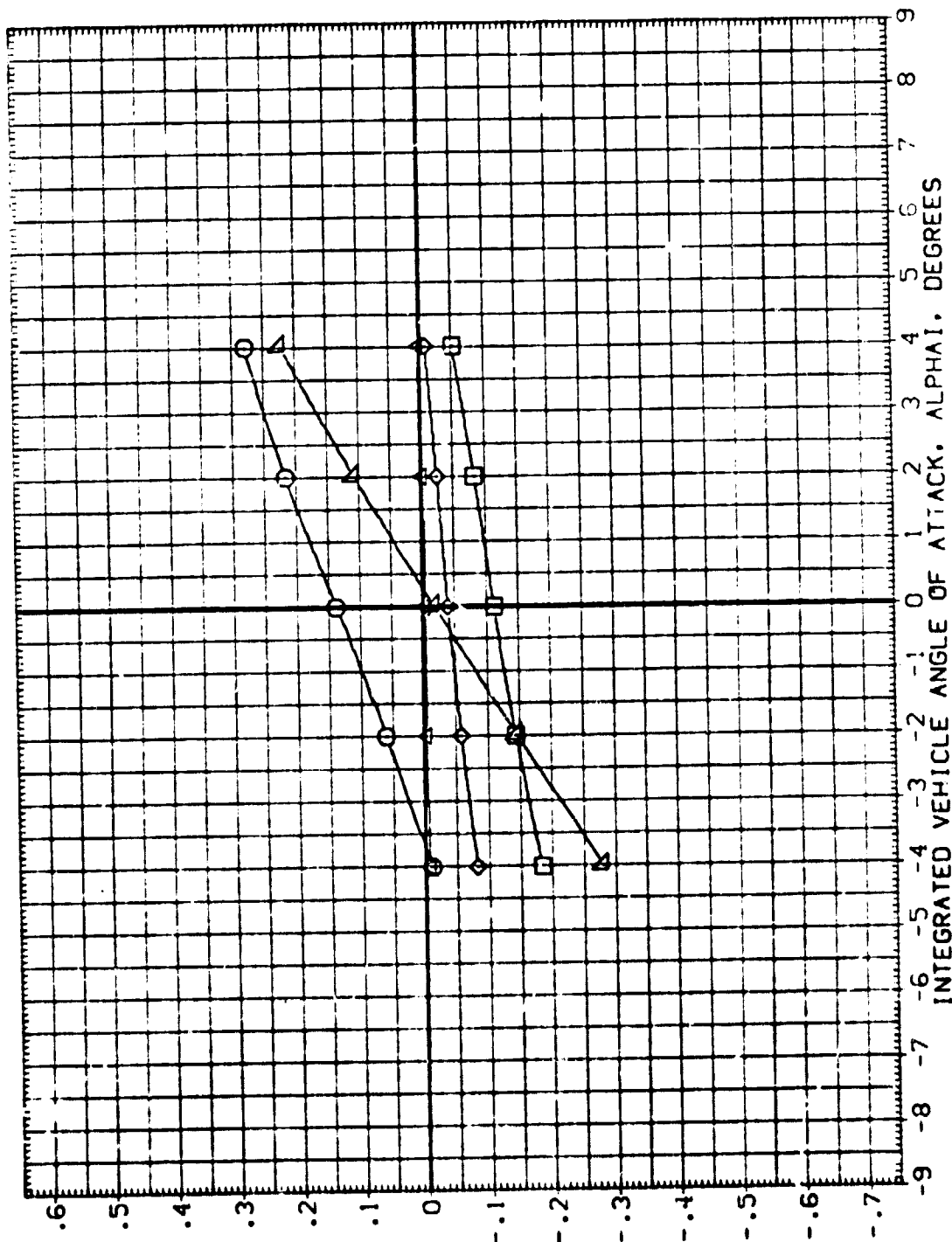


FIG. 4 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4

(A)BET.VI = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRX	REFERENCE INFORMATION
(MET135)	AMES97-019(1A1) EVAP GRP-ALL HL SEALED	8.000	-4.000	1.550	.000	SREF 2690.0000 SO.FT.
(MET135)	AMES97-019(1A1) EVAP GRP-ALL HL SEALED	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(MET135)	AMES97-019(1A1) EVAP GRP-ALL HL SEALED	8.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(MET135)	AMES97-019(1A1) EVAP GRP-ALL HL SEALED	8.000	-4.000	1.550	.000	XMRP 976.0000 IN.
(MET135)	AMES97-019(1A1) EVAP GRP-ALL HL SEALED	8.000	-4.000	1.550	.000	YMRP 400.0000 IN.
(MET135)	AMES97-019(1A1) EVAP GRP-ALL HL SEALED	8.000	-4.000	1.550	.000	ZMRP 400.0000 IN.
						SCALE .0300

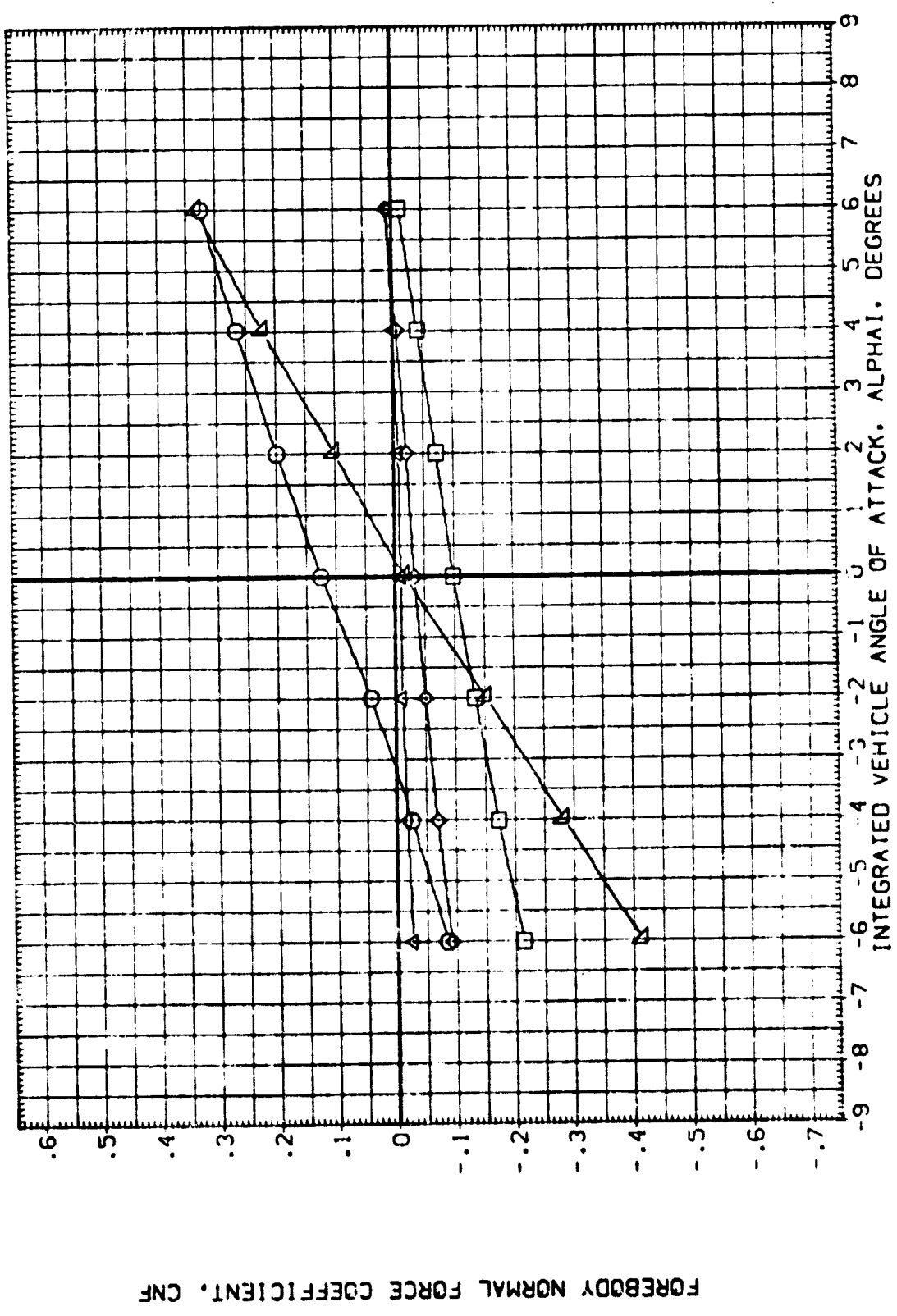


FIG. 4 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4

(B)BET1 = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELEV-15	ELEV-03	INCH	SP-3RK	REFERENCE INFORMATION
(MET035)	AME597-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	1.550	1.000	SRL 4893.0000
(MET035)	AME597-019(IAB1) LVAP TANKS - ALL HL SEALED	8.000	-4.000	1.550	1.000	LREF 1237.0000
(MET035)	AME597-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	1.550	1.000	SREF 1237.0000
(MET035)	AME597-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	1.550	1.000	YMRP 9.0000
(MET035)	AME597-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	1.550	1.000	ZMRP 400.0000
						SCALE .0300
						N. PT. N. N. XT N. YF N. ZT

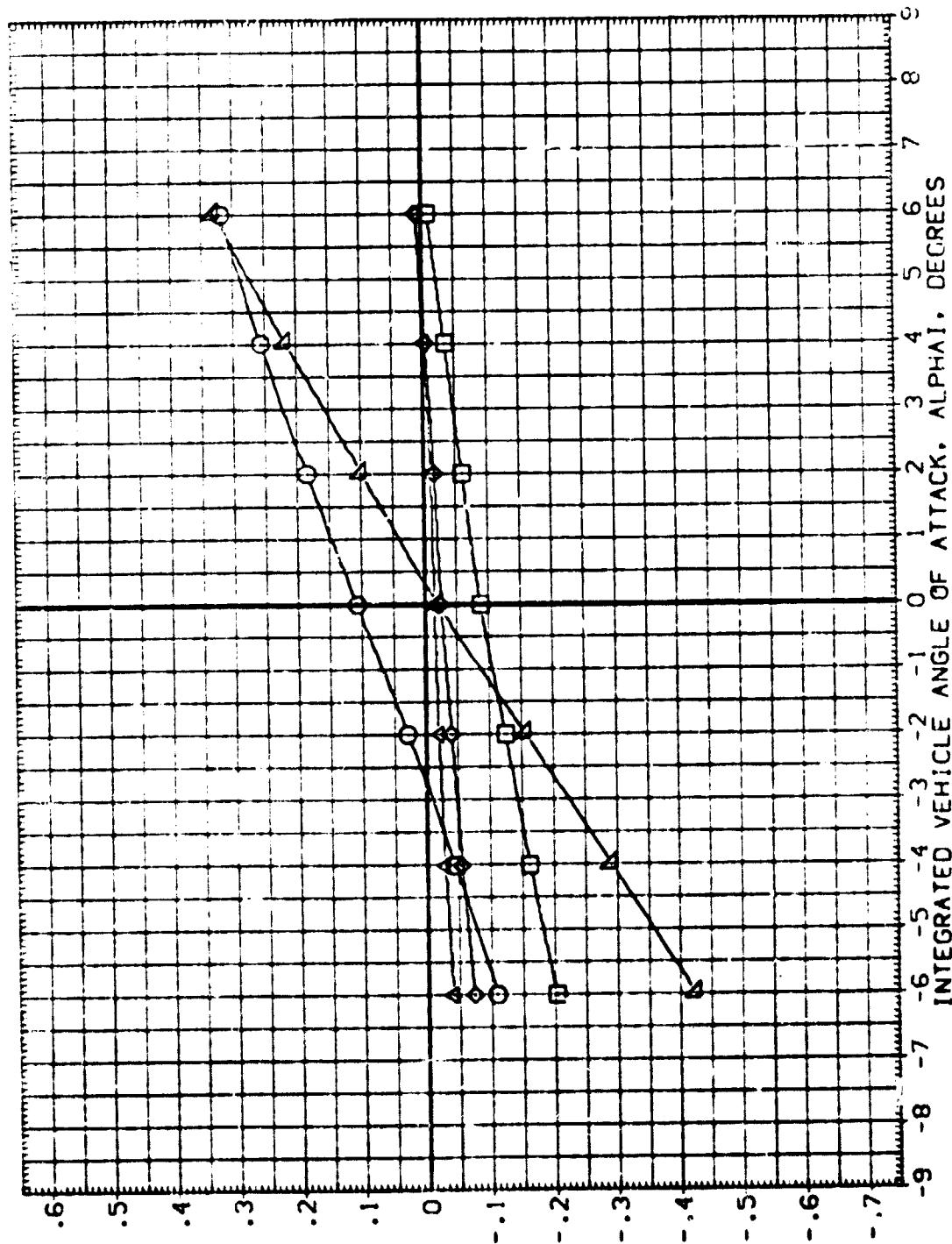
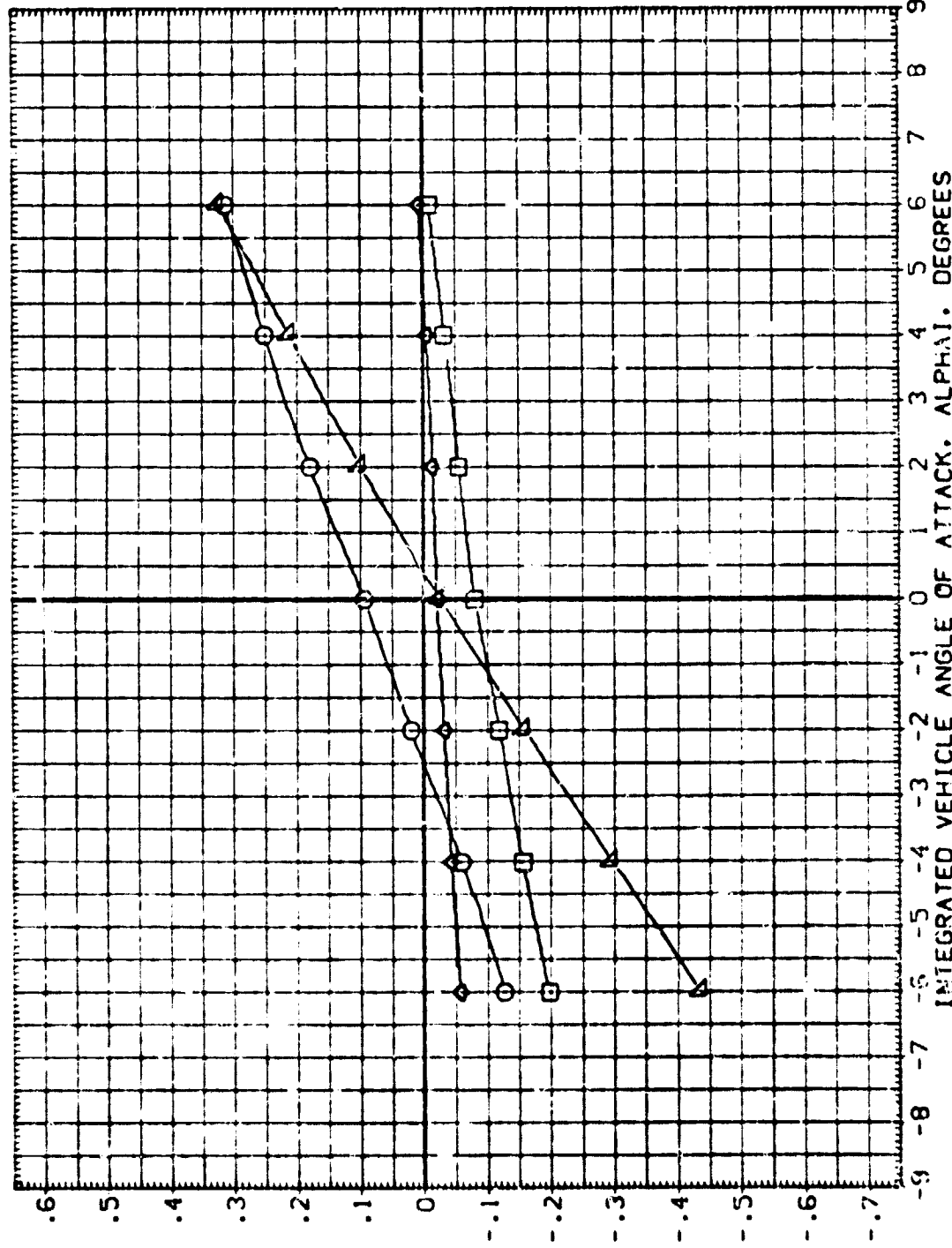


FIG. 4 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=1.55$ $DEV=8/-4$

(C)BET.1 = -2.00

ORIGINAL FROM 1200R

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRBK	REFERENCE INFORMATION
(MET103)	AMES97-019(1A8) LVAP CRB11ER-ALL ML SEALED	8.000	-1.000	1.550	.000	SREF 2690.0000 SO.FT.
(MET113)	AMES97-019(1A8) LVAP TAMP - ALL ML SEALED	8.000	-1.000	1.550	.000	LREF 1297.0000 IN.
(MET113)	AMES97-019(1A8) LVAP L-SRB - ALL ML SEALED	8.000	-1.000	1.550	.000	BREF 1297.0000 IN.
(MET113)	AMES97-019(1A8) LVAP R-109 - ALL ML SEALED	8.000	-1.000	1.550	.000	YMRP 976.0000 IN. XT
(MET113)	AMES97-019(1A8) LVAP INY VEH ALL ML SEALED	8.000	-1.000	1.550	.000	ZMRP 400.0000 IN. YT
						SCALE .0300



FOREBODY NORMAL FORCE COEFFICIENT, CNF

FIG. 4 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4

(D)BFT.1 = .00

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPOBR	REFERENCE INFORMATION
(MET035)	AMES97-019(IAB1) LVAP	8.000	-4.000	1.550	.000	SREF 2630.0000 SQ.FT.
(MET135)	AMES97-019(IAB1) LVAP	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(MET135)	AMES97-019(IAB1) LVAP	8.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(MET135)	AMES97-019(IAB1) LVAP	8.000	-4.000	1.550	.000	XMRP 376.0000 IN. XT
(MET135)	AMES97-019(IAB1) LVAP	8.000	-4.000	1.550	.000	YMRP 400.0000 IN. YT
(MET135)	AMES97-019(IAB1) LVAP	8.000	-4.000	1.550	.000	SCALE .0300

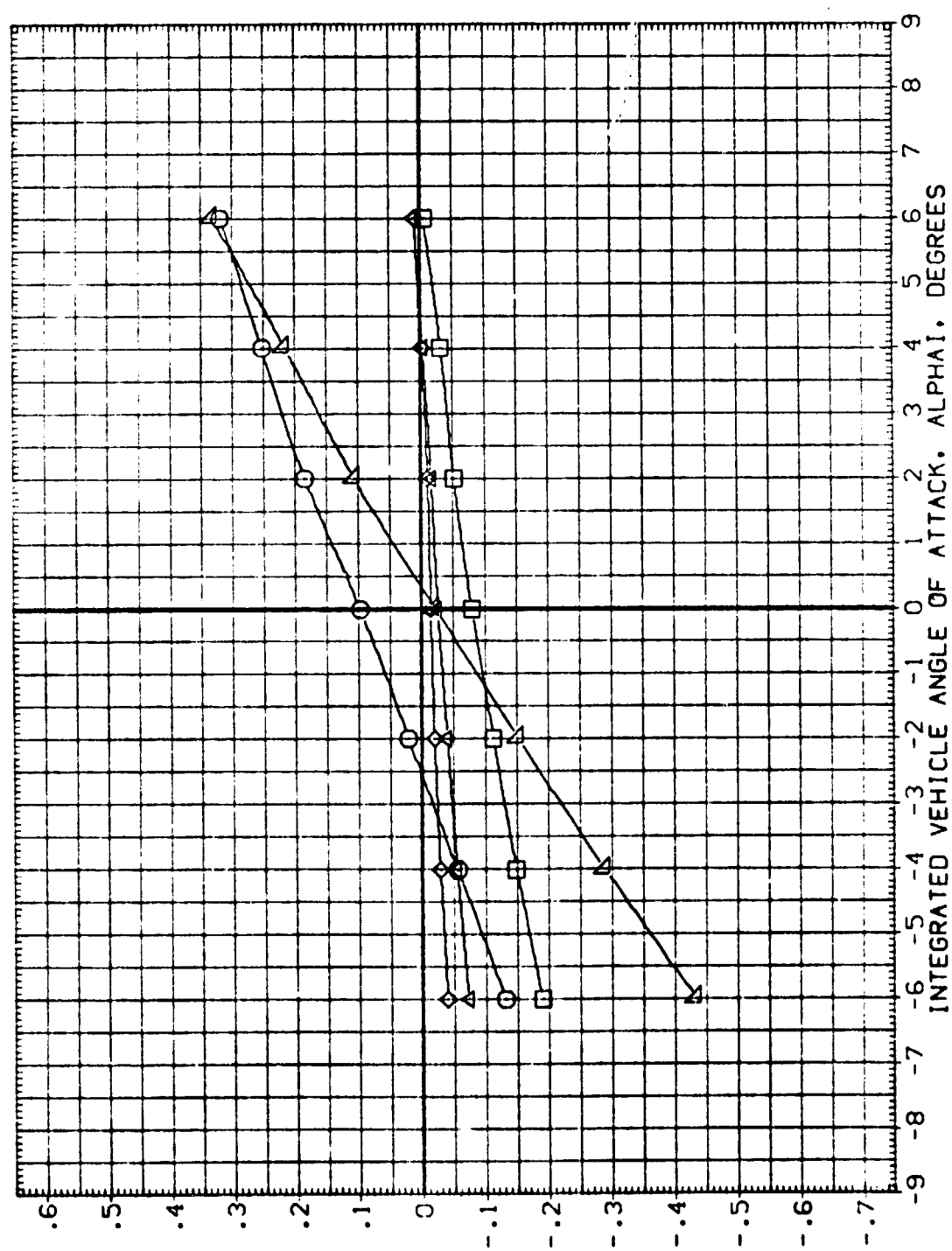
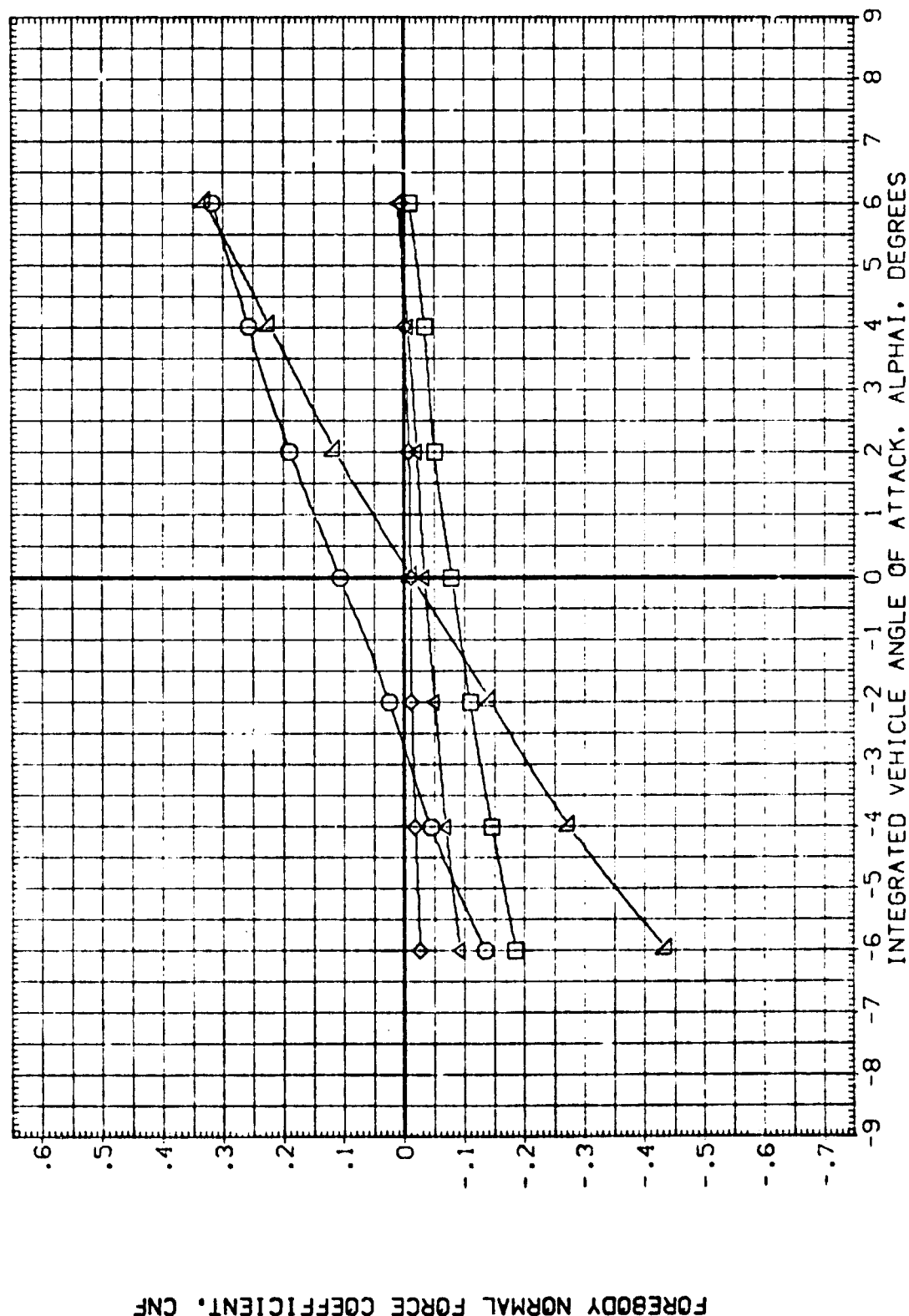


FIG. 4 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4
(E)BETA.I = 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPCRK	REFERENCE INFORMATION
(MET135)	AMES97-019(IAB1) LVAP	8.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(MET135)	AMES97-019(IAB1) LVAP	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(MET135)	AMES97-019(IAB1) LVAP	8.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(MET135)	AMES97-019(IAB1) LVAP	8.000	-4.000	1.550	.000	XMRP 976.0000 IN.
(MET135)	AMES97-019(IAB1) LVAP	8.000	-4.000	1.550	.000	YMRP .0000 IN.
(MET135)	AMES97-019(IAB1) LVAP	8.000	-4.000	1.550	.000	ZMRP 400.0000 IN.
						SCALE .0300



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-09	MACH	SPSRK	REFERENCE INFORMATION	SO.FT.
(MET135)	AMES97-0191(IAB1) LVAP	8.000	-4.000	1.550	.000	SREF	2500.0000
(MET135)	AMES97-0191(IAB1) LVAP	8.000	-4.000	1.550	.000	LREF	1297.0000
(MET135)	AMES97-0191(IAB1) LVAP	8.000	-4.000	1.550	.000	BREF	1297.0000
(MET135)	AMES97-0191(IAB1) LVAP	8.000	-4.000	1.550	.000	YMRP	876.0000
(MET135)	AMES97-0191(IAB1) LVAP	8.000	-4.000	1.550	.000	ZMRP	400.0000
						SCALE	.0300

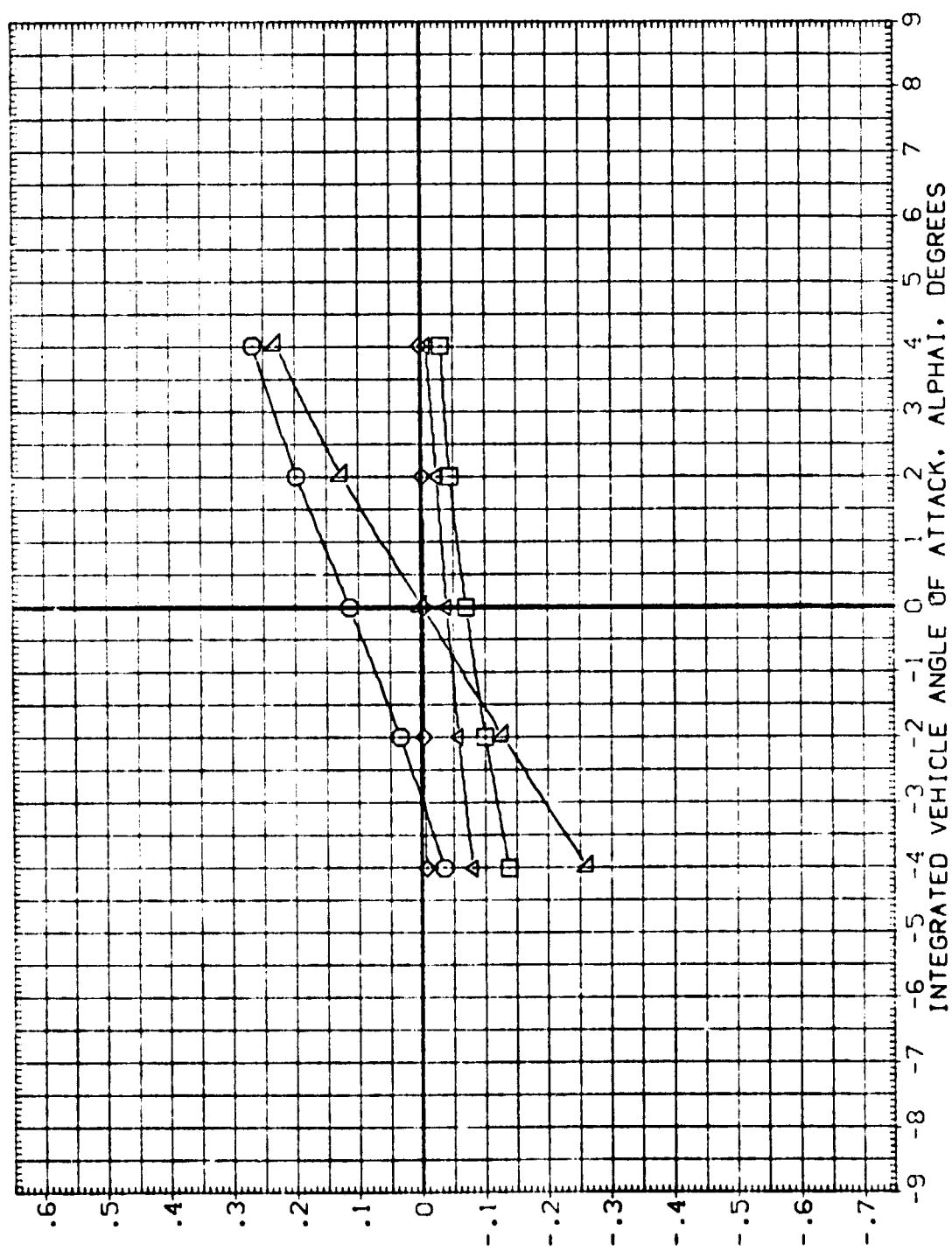


FIG. 4 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4

(G)BETA1 = 6.00

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STATE OF TEXAS

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-2B	MACH	SPC9RK	REFERENCE INFORMATION
(MET135)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(MET135)	AMES97-019(IAB1) LVAP TAP - ALL HL SEALED	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(MET135)	AMES97-019(IAB1) LVAP L-5CB - ALL HL SEALED	8.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(MET135)	AMES97-019(IAB1) LVAP L-5CB - ALL HL SEALED	8.000	-4.000	1.550	.000	XMRP 976.0000 IN. XT
(MET135)	AMES97-019(IAB1) LVAP L-5CB - ALL HL SEALED	8.000	-4.000	1.550	.000	YMRP 400.0000 IN. YT
						SCALE .0300

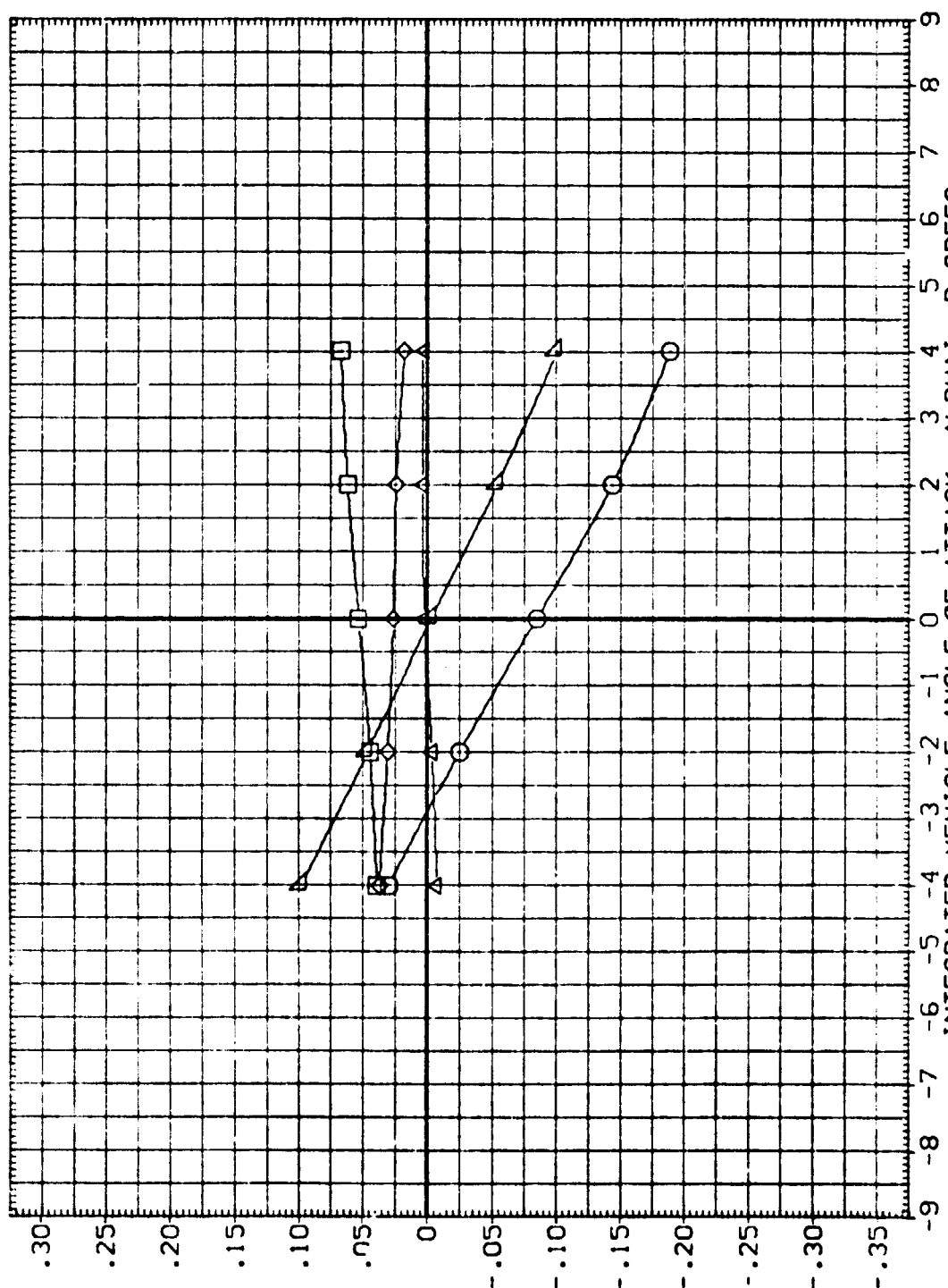


FIG. 4 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4

(ABETA) = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-C3	WACH	S-DJRK	REFERENCE INFORMATION
(MET035)	AMES97-019(IAB1) LVAP ORBITTER-ALL HL SEALED	8.000	-4.000	1.550	.000	SREF 2530.0000 SCFT.
(MET135)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(MET235)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(MET335)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	8.000	-4.000	1.550	.000	XMRP 976.0000 IN. XT
(MET435)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	1.550	.000	ZMRP 400.0000 IN. ZT
						SCALE

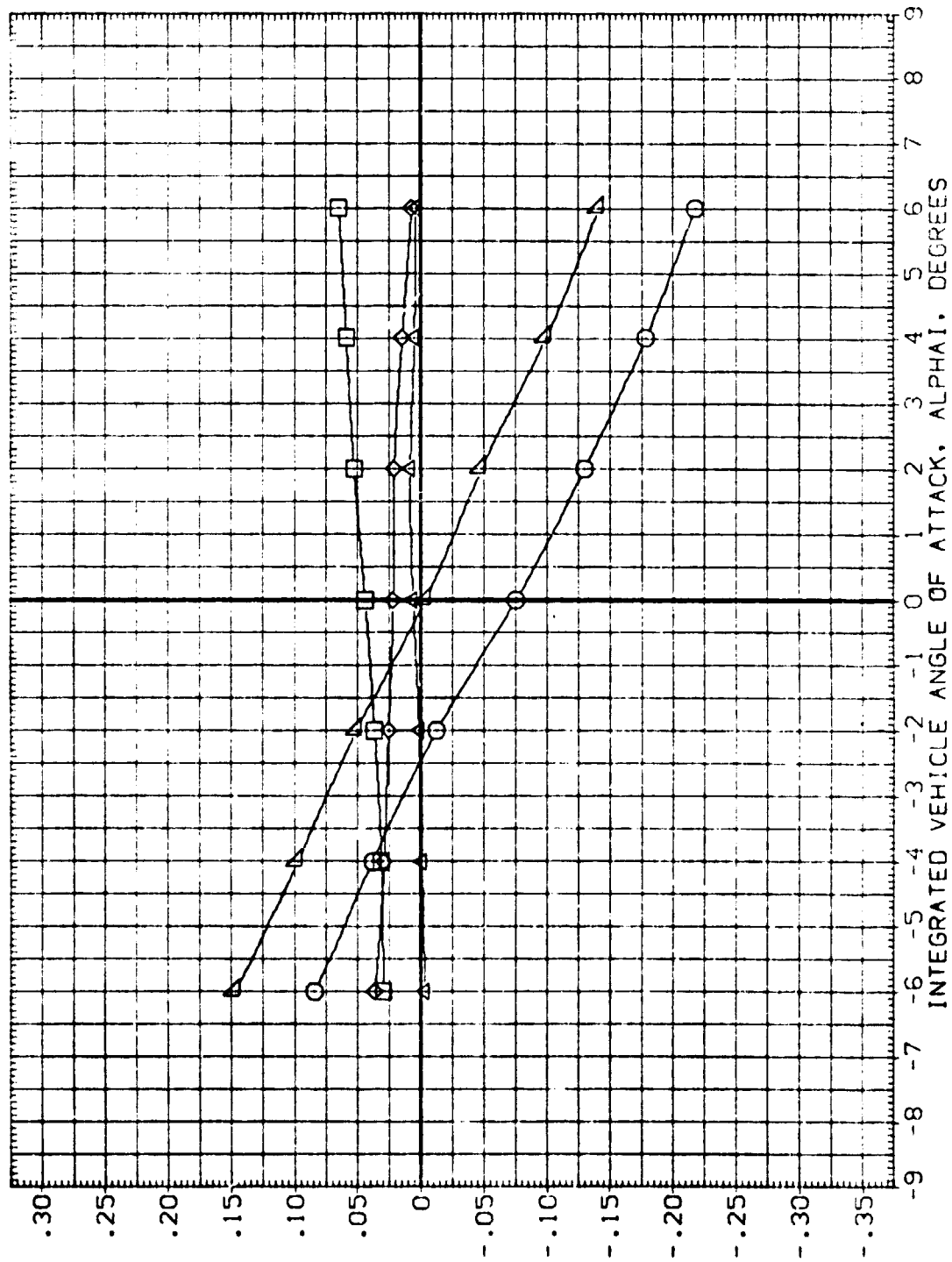


FIG. 4 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4

(B) BET. I = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPOBRK	REFERENCE INFORMATION
(MET135)	AMES97-019(1A81) LVAP	8.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(MET135)	AMES97-019(1A81) LVAP	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(MET135)	AMES97-019(1A81) LVAP	8.000	-4.000	1.550	.000	BREF 976.0000 IN.
(MET135)	AMES97-019(1A81) LVAP	8.000	-4.000	1.550	.000	XMRP 400.0000 IN.
(MET135)	AMES97-019(1A81) LVAP	8.000	-4.000	1.550	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

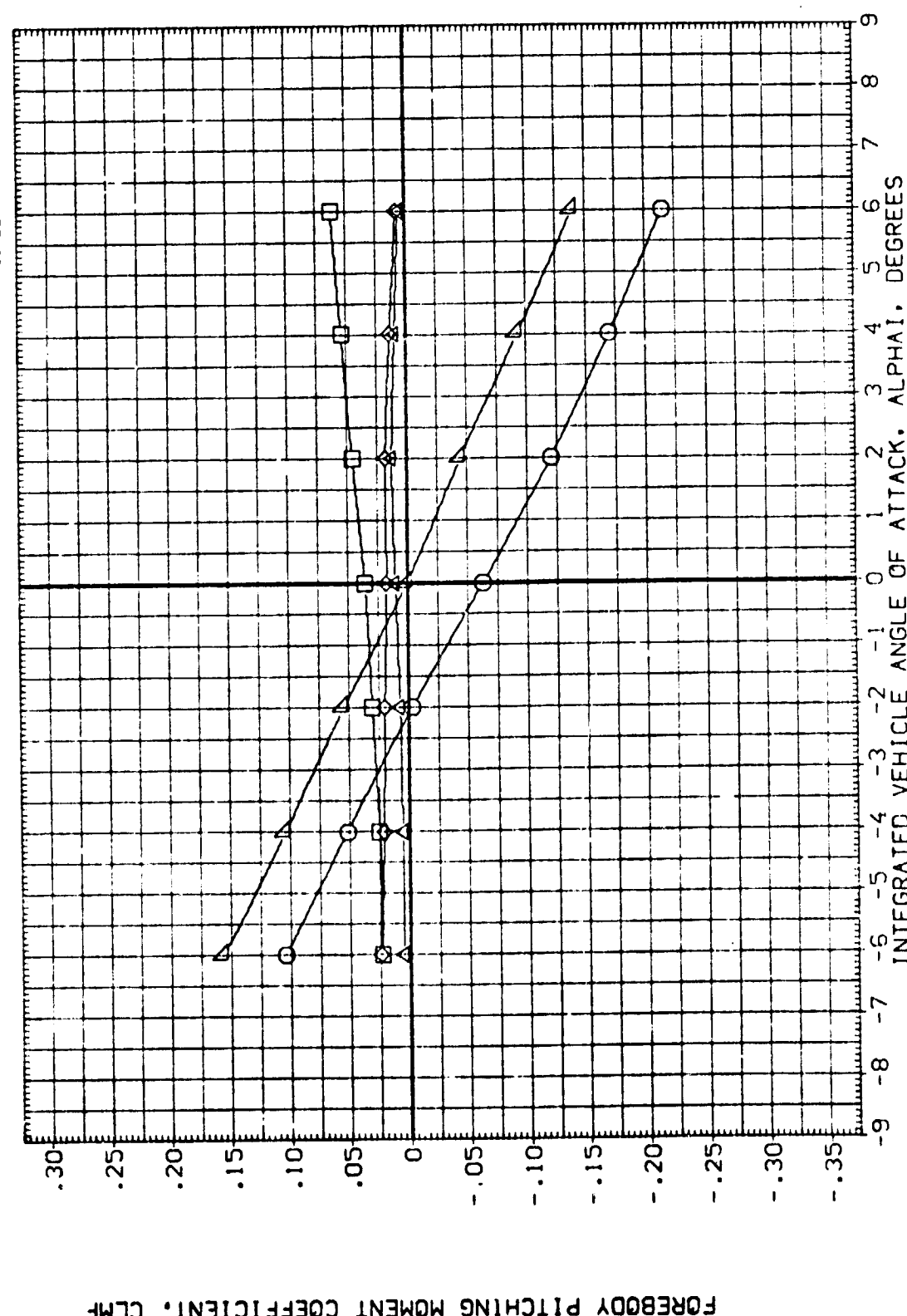


FIG. 4 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4

(C)BET.1 = -2.00

DATA SET SYMBOL
(MET135)
(MET135)
(MET135)
(MET135)
(MET135)

CONFIGURATION DESCRIPTION
AMES97-019(1A1) LVAP CRRT*ER-ALL HL SEALED
AMES97-019(1A1) LVAP TANK - ALL HL SEALED
AMES97-019(1A1) LVAP L-SRB - ALL HL SEALED
AMES97-019(1A1) LVAP R-SRB - ALL HL SEALED
AMES97-019(1A1) LVAP INT VEH ALL HL SEALED

ELV-1B ELV-08 MACH SPOBRK REFERENCE INFORMATION
8.000 -4.000 1.550 .000 SREF 2690.0000 SQ.FT.
8.000 -4.000 1.550 .000 LREF 1297.0000 IN.
8.000 -4.000 1.550 .000 RREF 1297.0000 IN.
8.000 -4.000 1.550 .000 XMRP 976.0000 IN. XT
8.000 -4.000 1.550 .000 YMRP 400.0000 IN. YT
8.000 -4.000 1.550 .000 ZMRP 400.0000 IN. ZT
SCALE .0300

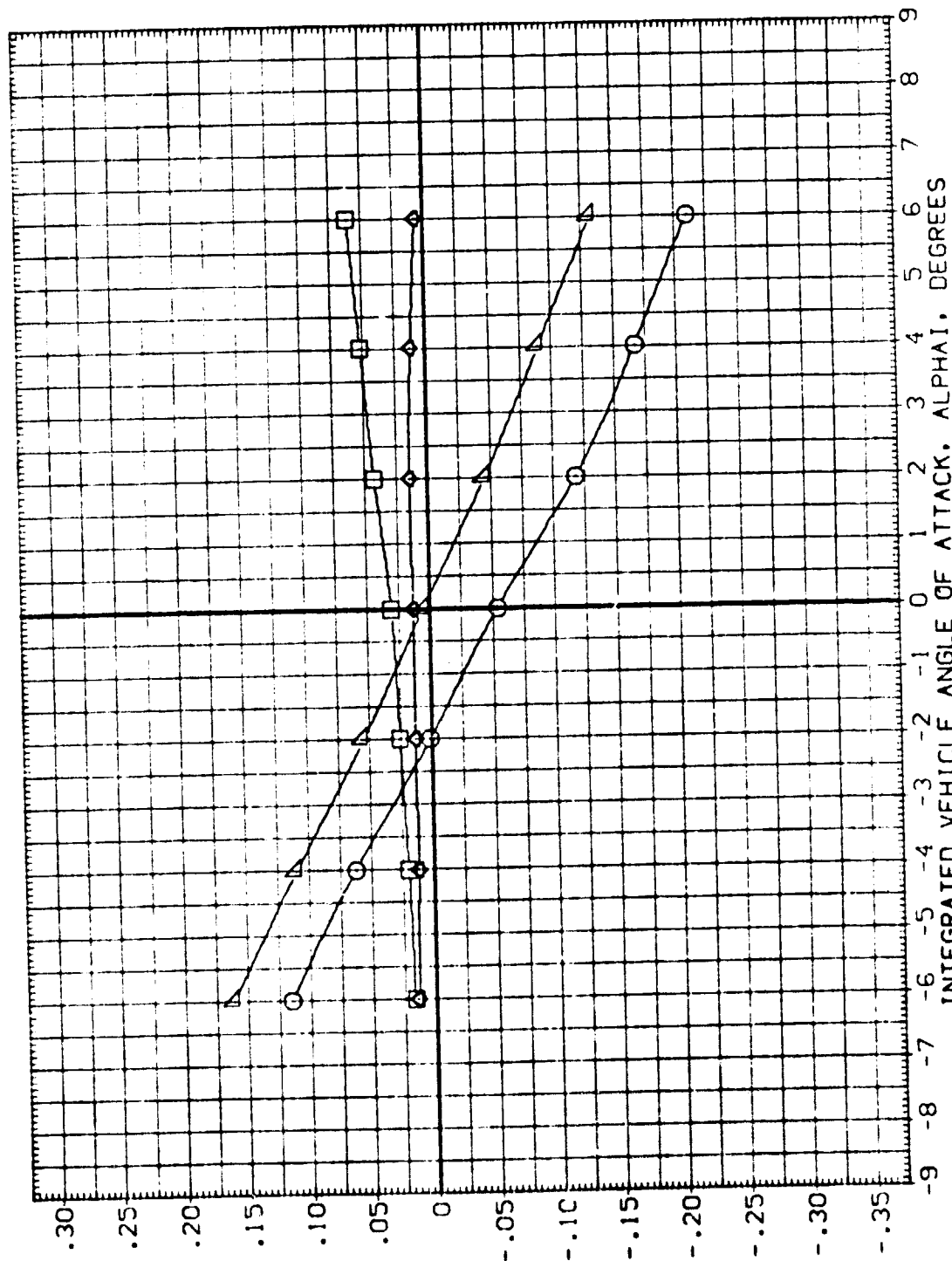
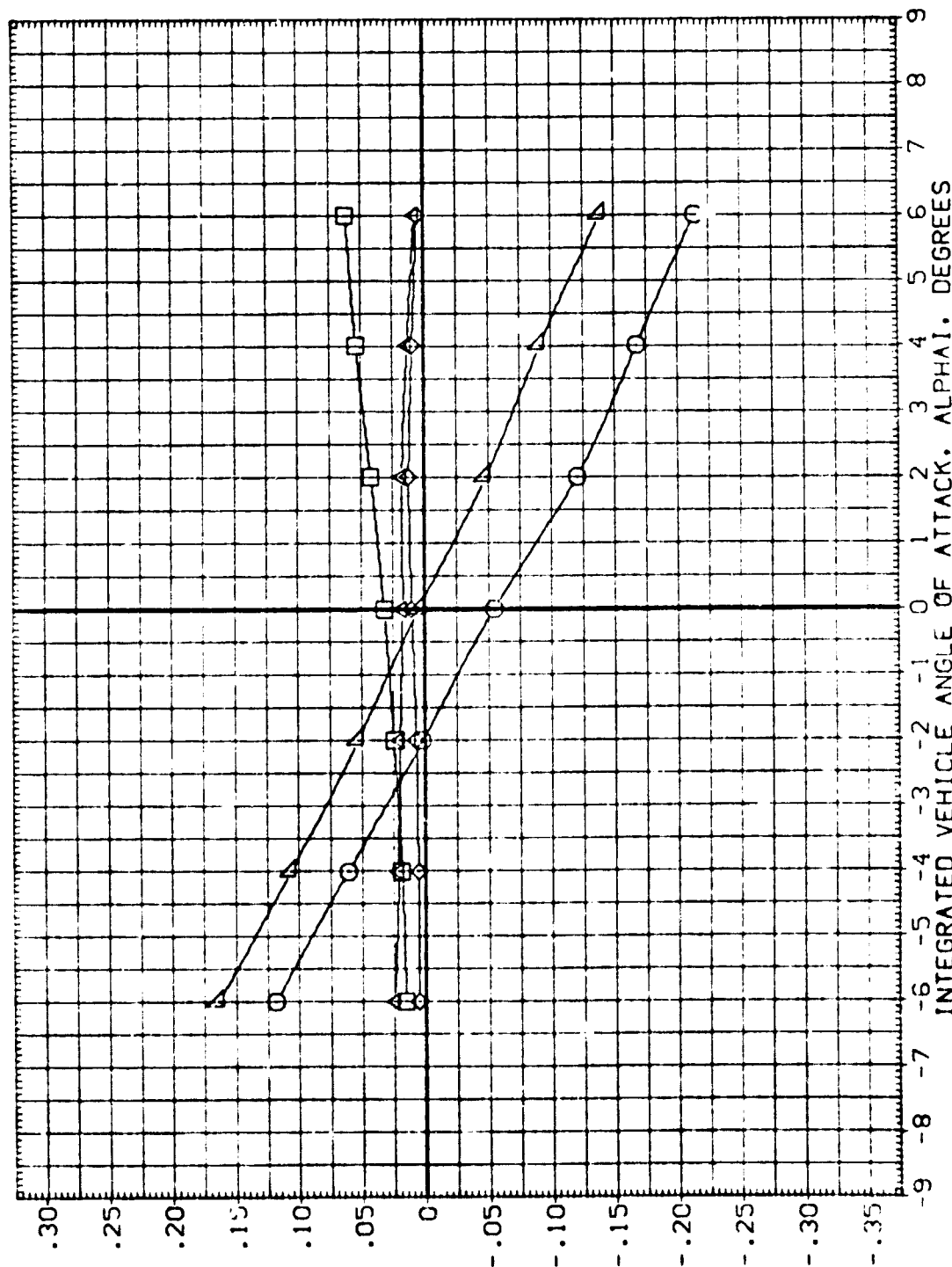


FIG. 4 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4

(D)BET.1 = .00

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-OB	MACH	SPOBRK	REFERENCE INFORMATION
(ME1035)	□	AMES97-019(1A81) LVAP CRITTER-ALL HL SEALED	8.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(ME1135)	○	AMES97-019(1A81) LVAP CRB - ALL HL SEALED	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(ME1235)	△	AMES97-019(1A81) LVAP CRB - ALL HL SEALED	8.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(ME1335)	◇	AMES97-019(1A81) LVAP R-10B ALL HL SEALED	8.000	-4.000	1.550	.000	XMRP 976.0000 IN.
(ME1435)	×	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	-4.000	1.550	.000	YMRP 400.0000 IN.
							ZMRP 400.0000 IN.
							SCALE .0300



FOREBODY PITCHING MOMENT COEFFICIENT, CLMF

FIG. 4 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4

DATA SET SYMBOL CONFIGURATION DESCRIPTION ELV-1B ELV-C3 MACH SPDBRK REFERENCE INFORMATION

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-C3	MACH	SPDBRK	REFERENCE INFORMATION
(MET035)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(MET135)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(MET135)	AMES97-019(IAB1) LVAP L-SKB - ALL HL SEALED	8.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(MET135)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	8.000	-4.000	1.550	.000	XMRP 976.0000 IN.
(MET135)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	1.550	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

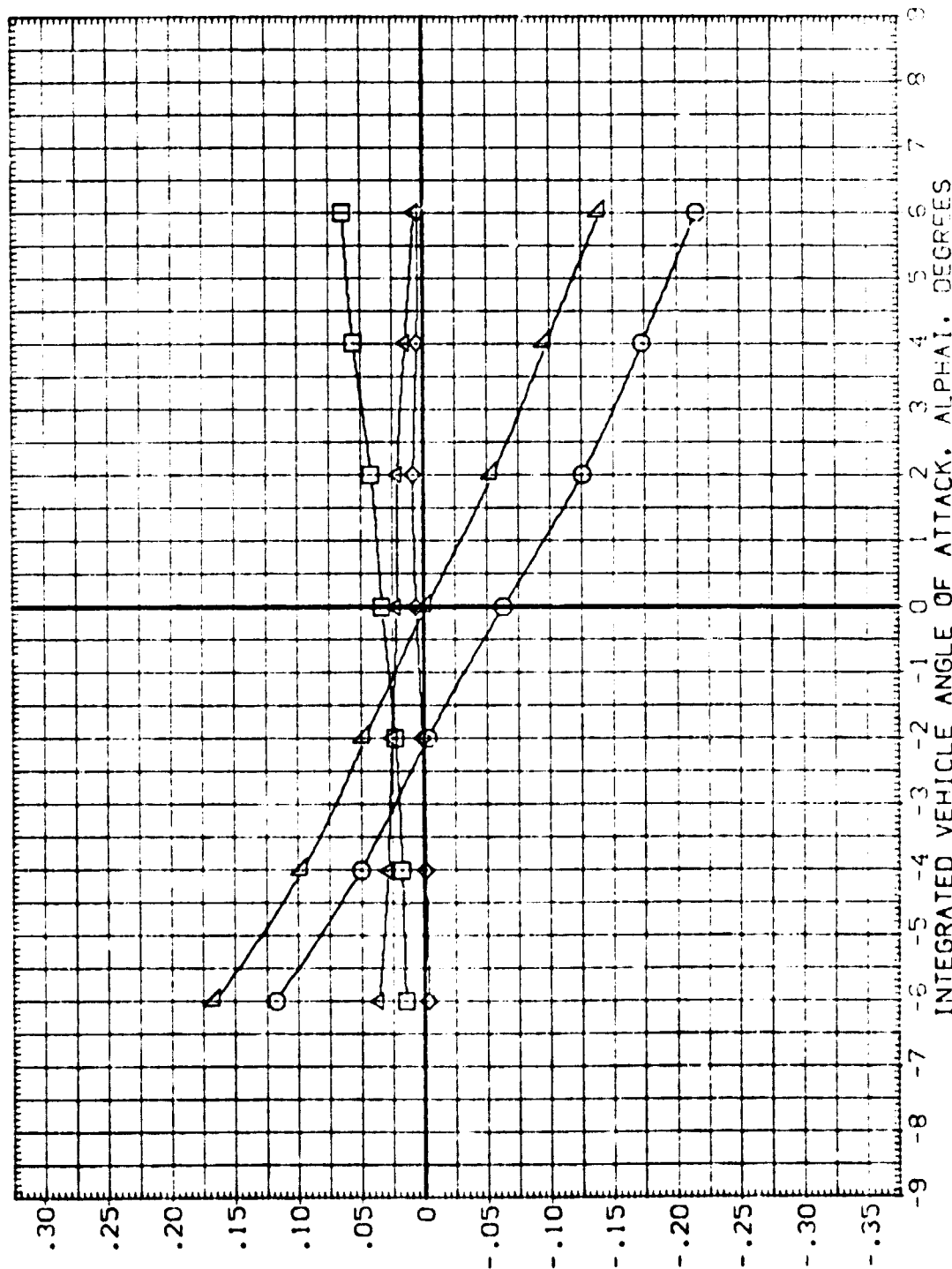
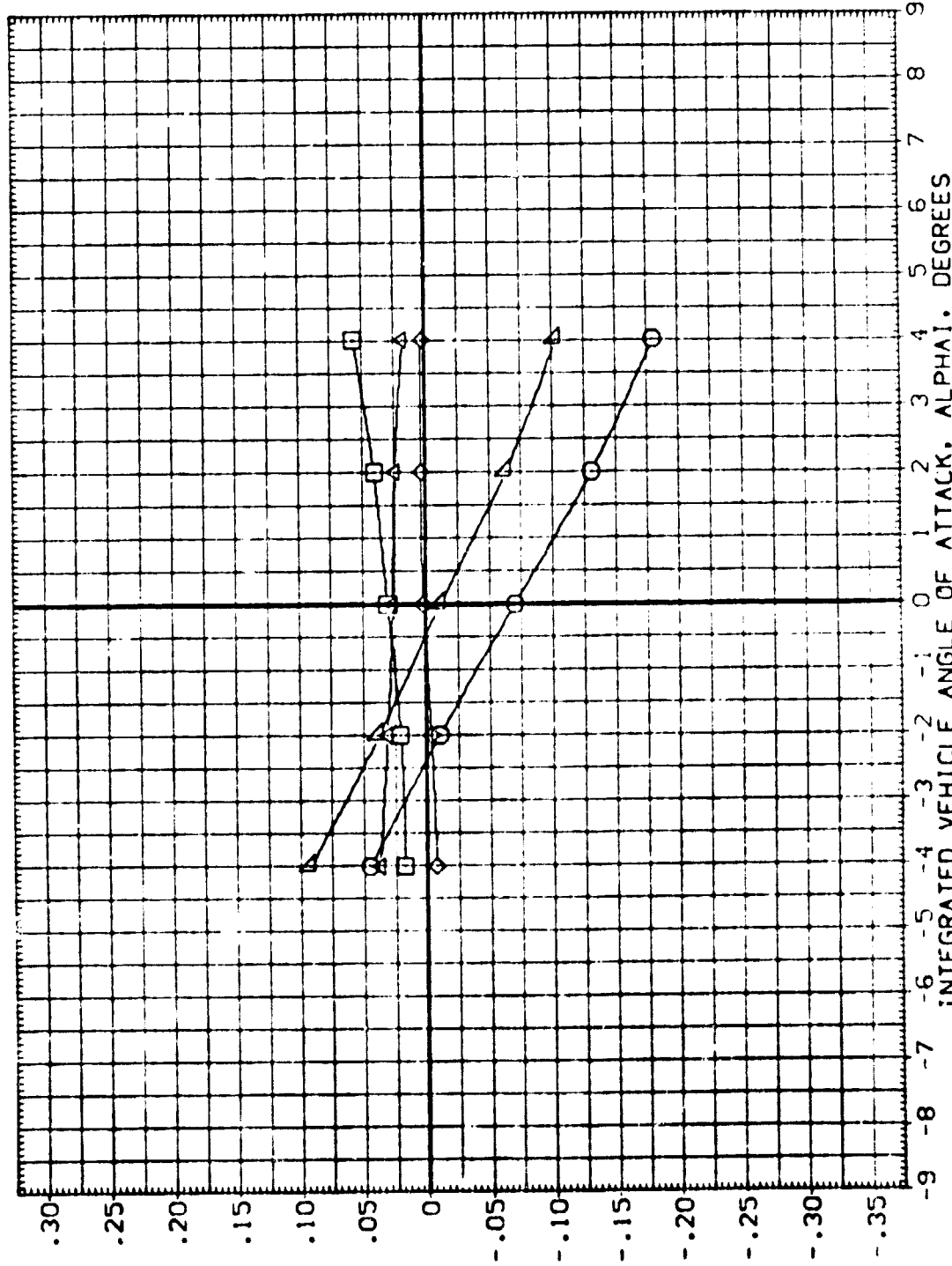


FIG. 4 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS. M=1.55 DEV=8/-4

(F)BETAL = 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(ME1035)	AMES97-019(1A91) LVAP	8.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(ME1135)	AMES97-019(1A81) LVAP	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(ME1135)	AMES97-019(1A81) LVAP	8.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(ME1135)	AMES97-019(1A81) LVAP	8.000	-4.000	1.550	.000	XMRP 976.0000 IN.
(ME1135)	AMES97-019(1A81) LVAP	8.000	-4.000	1.550	.000	YMRP 400.0000 IN.
(ME1135)	AMES97-019(1A81) LVAP	8.000	-4.000	1.550	.000	ZMRP 400.0000 IN.
						SCALE .0300



FOREBODY PITCHING MOMENT COEFFICIENT, CLMF

FIG. 4 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SP3BRK	REFERENCE INFORMATION
(MET075)	AMES97-019(IAB1) LVAP ORBITTER-ALL ML SEALED	8.000	-4.000	1.350	.000	SREF 7690.0000 SQ.FT.
(MET135)	AMES97-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	-4.000	1.350	.000	LREF 1297.0000 IN.
(MET135)	AMES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	8.000	-4.000	1.350	.000	BREF 1297.0000 IN.
(MET135)	AMES97-019(IAB1) LVAP R-LRB - ALL ML SEALED	8.000	-4.000	1.350	.000	XMRP 976.0000 IN. XT
(MET135)	AMES97-019(IAB1) LVAP INT VEN ALL ML SEALED	8.000	-4.000	1.350	.000	VMRP .0000 IN. VT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

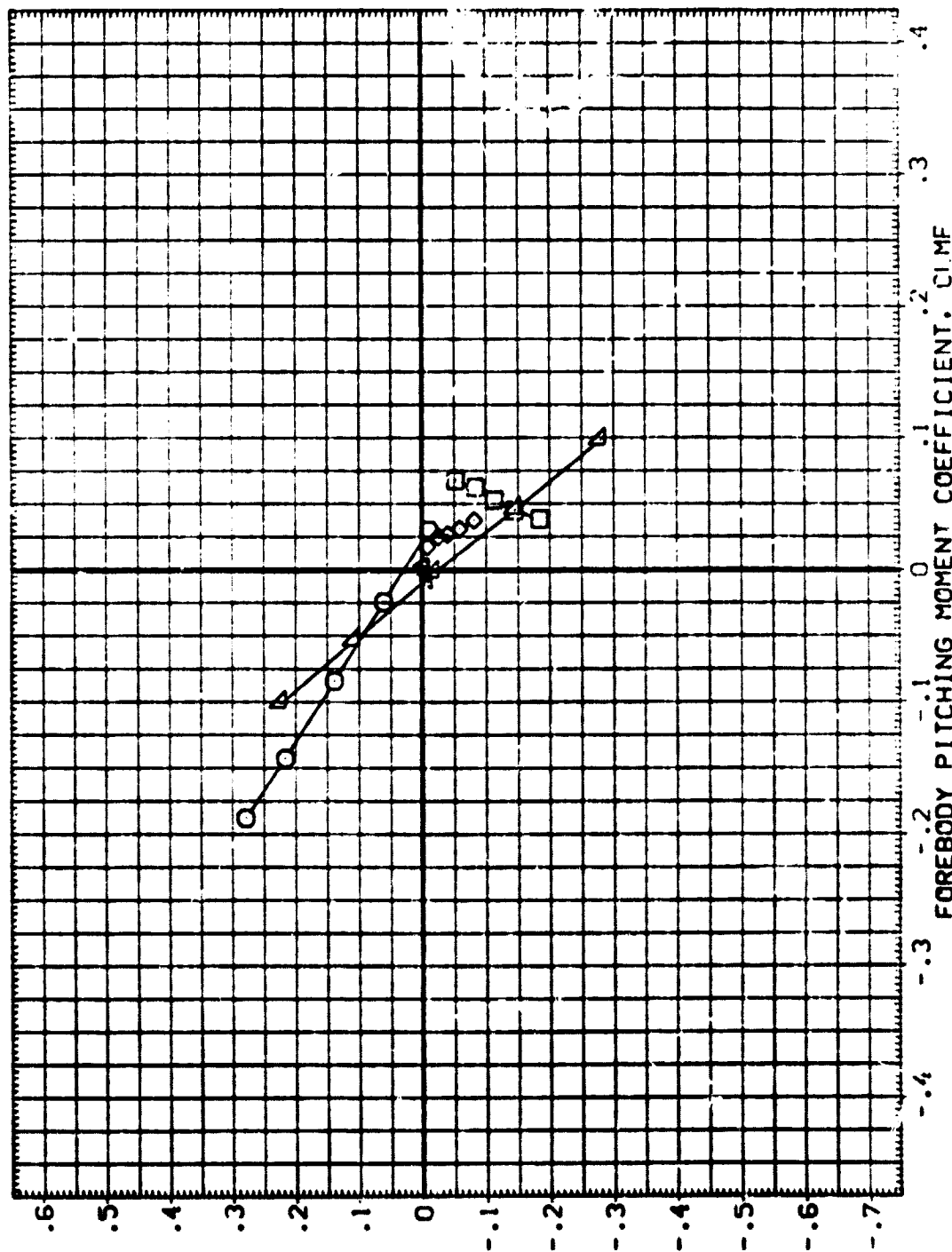


FIG. 4 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4

(A)BET.1 = -5.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(MET025)	AMES97-019C(AB1) LVAP	8.000	-4.000	1.550	.000	SREF 2690.0000 IN.
(MET025)	AMES97-019C(AB1) LVAP	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(MET025)	AMES97-019C(AB1) LVAP	8.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(MET025)	AMES97-019C(AB1) LVAP	8.000	-4.000	1.550	.000	XMRP 976.0000 IN.
(MET025)	AMES97-019C(AB1) LVAP	8.000	-4.000	1.550	.000	YMRP 400.0000 IN.
(MET025)	AMES97-019C(AB1) LVAP	8.000	-4.000	1.550	.000	ZMRP 400.0000 IN.
						SCALE .0300

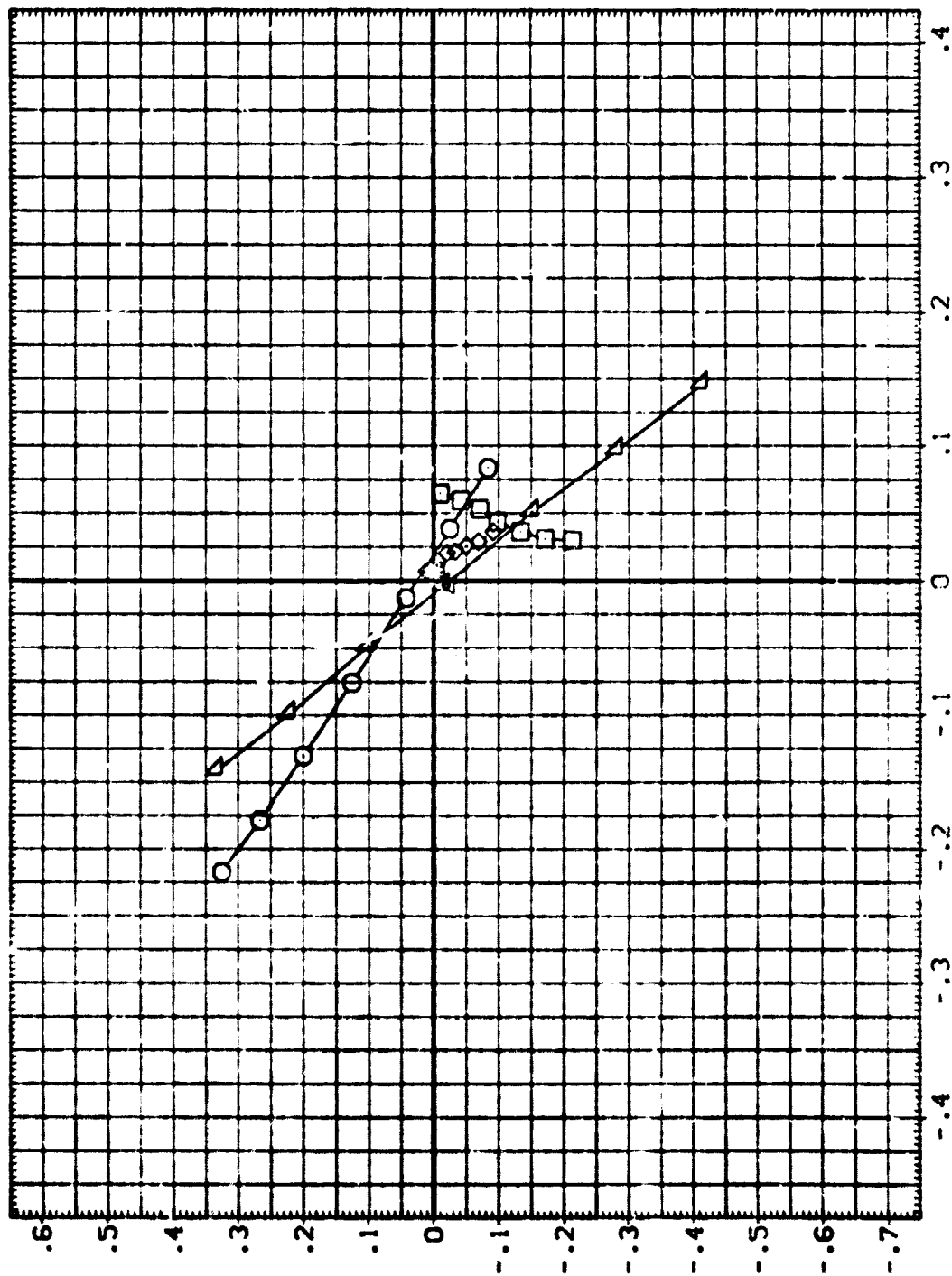


FIG. 4 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4

(B)BET.1 = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPCBRK	REFERENCE INFORMATION
(ME1075)	AMES97-019(1A81) LVAP ORRITER-ALL M _L SEALED	0.000	-4.000	1.550	.000	SREF 2690.0000 SO.FT.
(ME1135)	AMES97-019(1A81) LVAP TANK - ALL M _L SEALED	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(ME1135)	AMES97-019(1A81) LVAP L-SRB - ALL M _L SEALED	8.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(ME1135)	AMES97-019(1A81) LVAP R-LRB - ALL M _L SEALED	8.000	-4.000	1.550	.000	XMRP 976.0000 IN. XT
(ME1135)	AMES97-019(1A81) LVAP INT VEN ALL M _L SEALED	8.000	-4.000	1.550	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

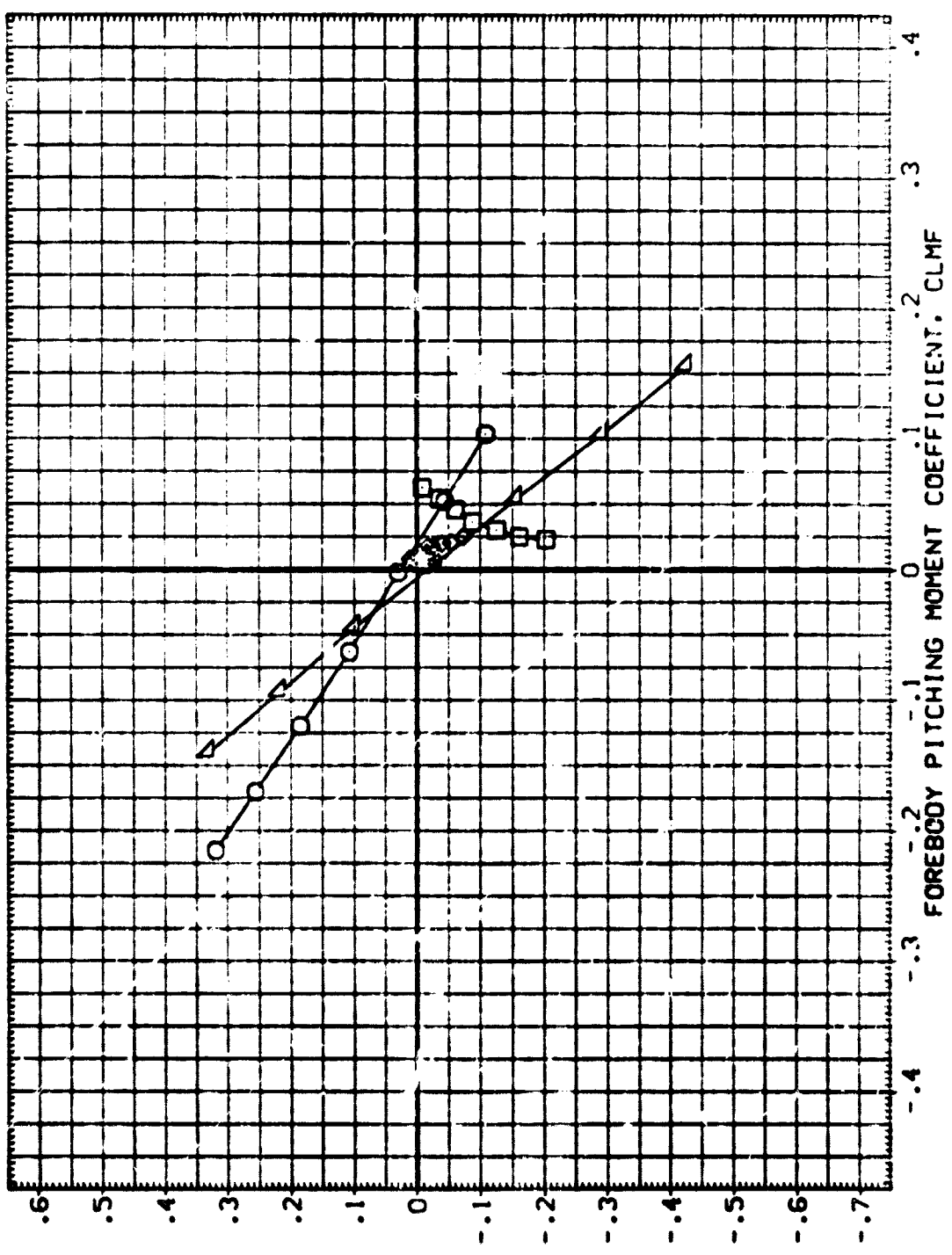


FIG. 4 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4

(C)BET.1 = -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(MET03)	AMES97-019(IAB1) LVAP	8.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(MET133)	AMES97-019(IAB1) LVAP	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(MET133)	AMES97-019(IAB1) LVAP	8.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(MET133)	AMES97-019(IAB1) LVAP	8.000	-4.000	1.550	.000	XMRP 976.0000 IN.
(MET133)	AMES97-019(IAB1) LVAP	8.000	-4.000	1.550	.000	YMRP 400.0000 IN.
(MET133)	AMES97-019(IAB1) LVAP	8.000	-4.000	1.550	.000	ZMRP 400.0000 IN.
						SCALE .0300

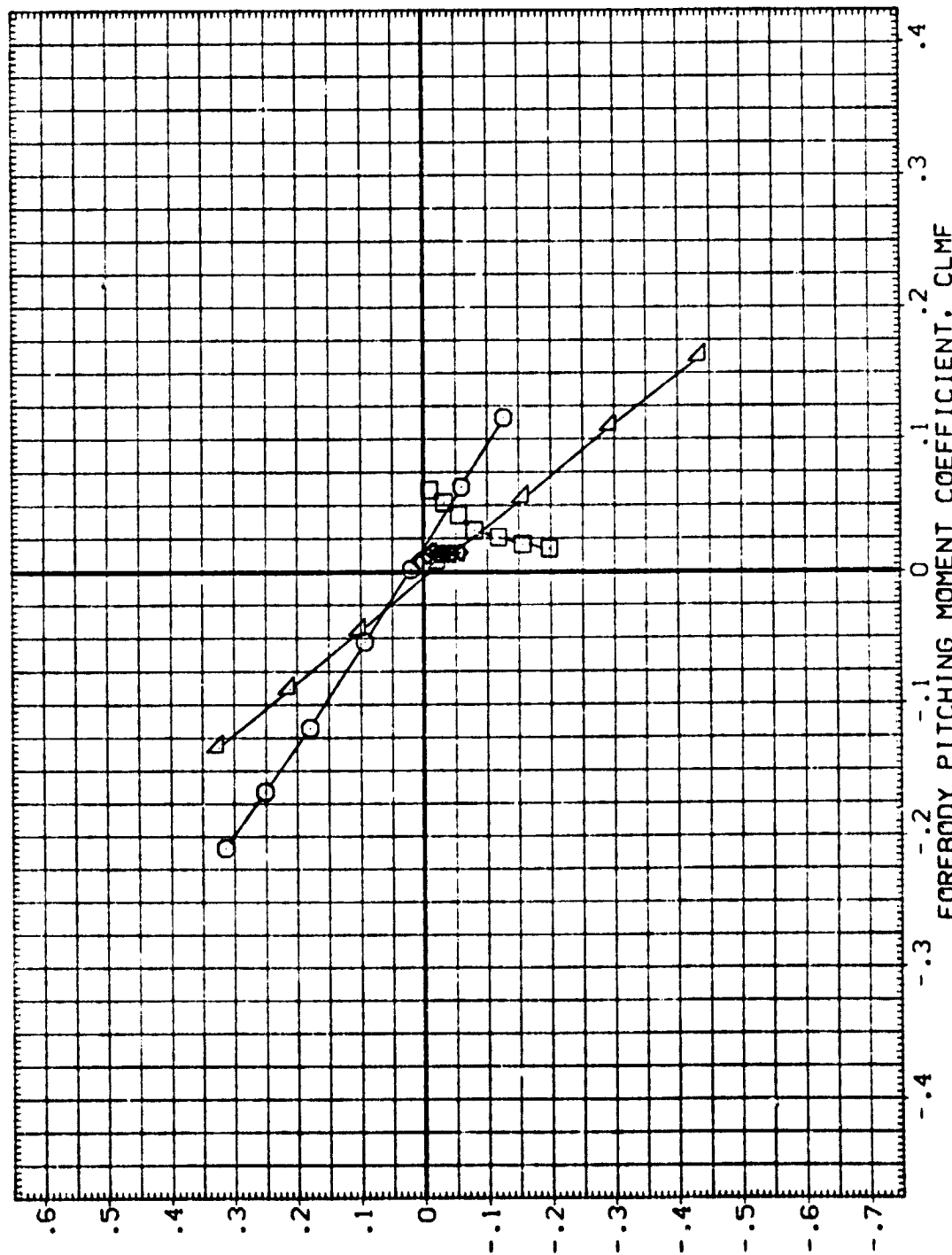


FIG. 4 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4

(D)BET.1 = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-CB	MACH	SPDRK	REFERENCE INFORMATION
(MET035)	AMES97-019(1AB1) LVAP ORBITTER-ALL HL SEALED	8.000	-4.000	1.550	.000	SREF 2593.0000 SQ.FT.
(MET135)	AMES97-019(1AB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(MET135)	AMES97-019(1AB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(MET135)	AMES97-019(1AB1) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	1.550	.000	XMREF 976.0000 IN.
(MET135)	AMES97-019(1AB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	1.550	.000	VMREF .0000 IN.
						ZMREF 400.0000 IN.
						SCALE .0300

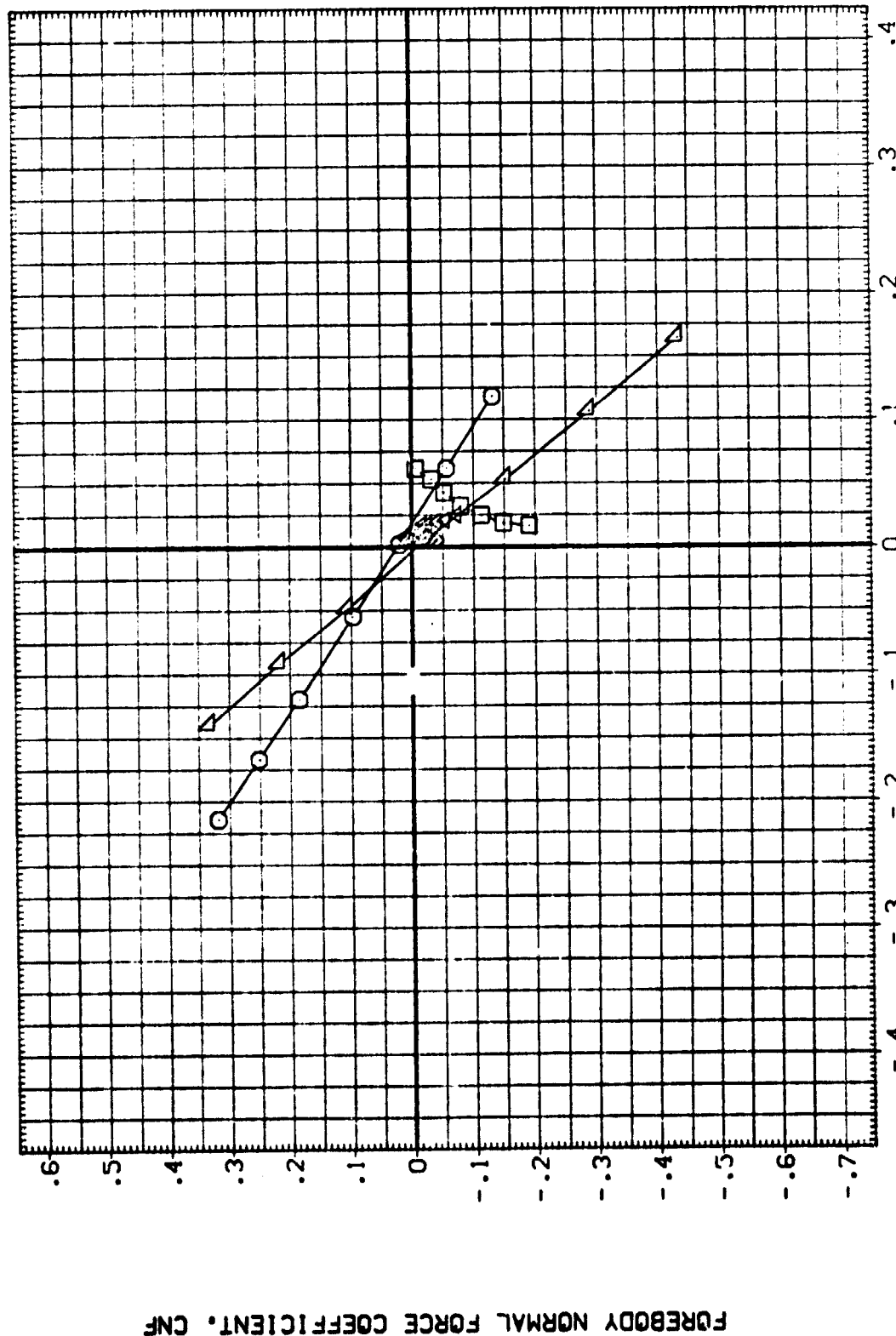


FIG. 4 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4

(E)BETA1 = 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPOBRK	REFERENCE INFORMATION
(MET035)	AMES97-019(1A81) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(MET135)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(MET135)	AMES97-019(1A81) LVAP L-598 - ALL HL SEALED	8.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(MET135)	AMES97-019(1A81) LVAP R-18B ALL HL SEALED	8.000	-4.000	1.550	.000	XHRP 976.0000 IN.
(MET135)	AMES97-019(1A81) LVAP IN: VEH ALL HL SEALED	8.000	-4.000	1.550	.000	YHRP 400.0000 IN.
						ZHRP 400.0000 IN.
						SCALE .0300

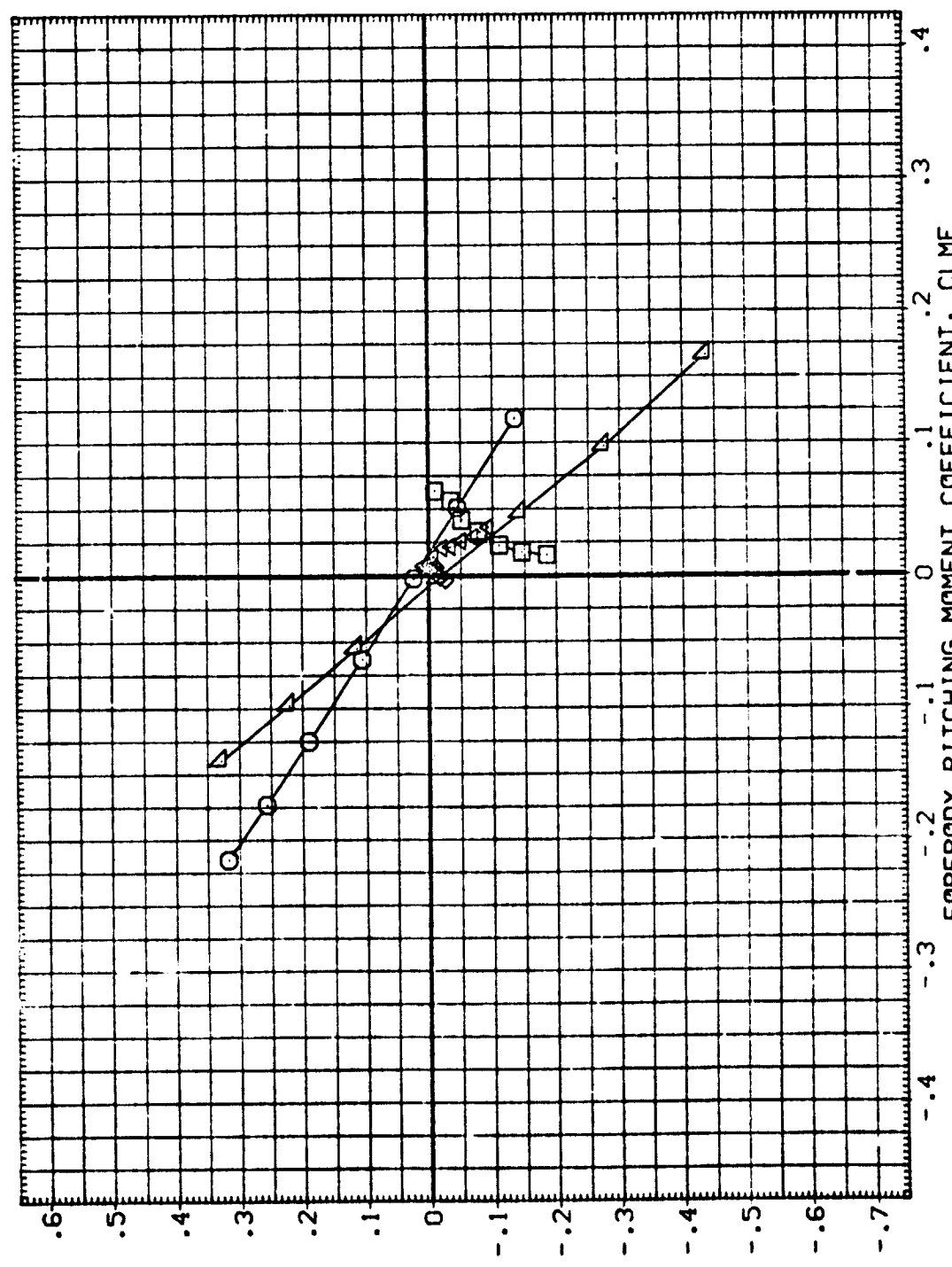


FIG. 4 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDBRK	REFERENCE INFORMATION
(MET035)	AMES97-019([A81]) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	1.550	.000	SREF 2630.0000 SO.FT.
(MET135)	AMES97-019([A81]) LVAP TANK - ALL HL SEALED	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(METL35)	AMES97-019([A81]) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(METR35)	AMES97-019([A81]) LVAP R-LRB ALL HL SEALED	8.000	-4.000	1.550	.000	XMRP 976.0000 IN. XT
(MET135)	AMES97-019([A81]) LVAP INT VEH ALL HL SEALED	8.000	-4.000	1.550	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

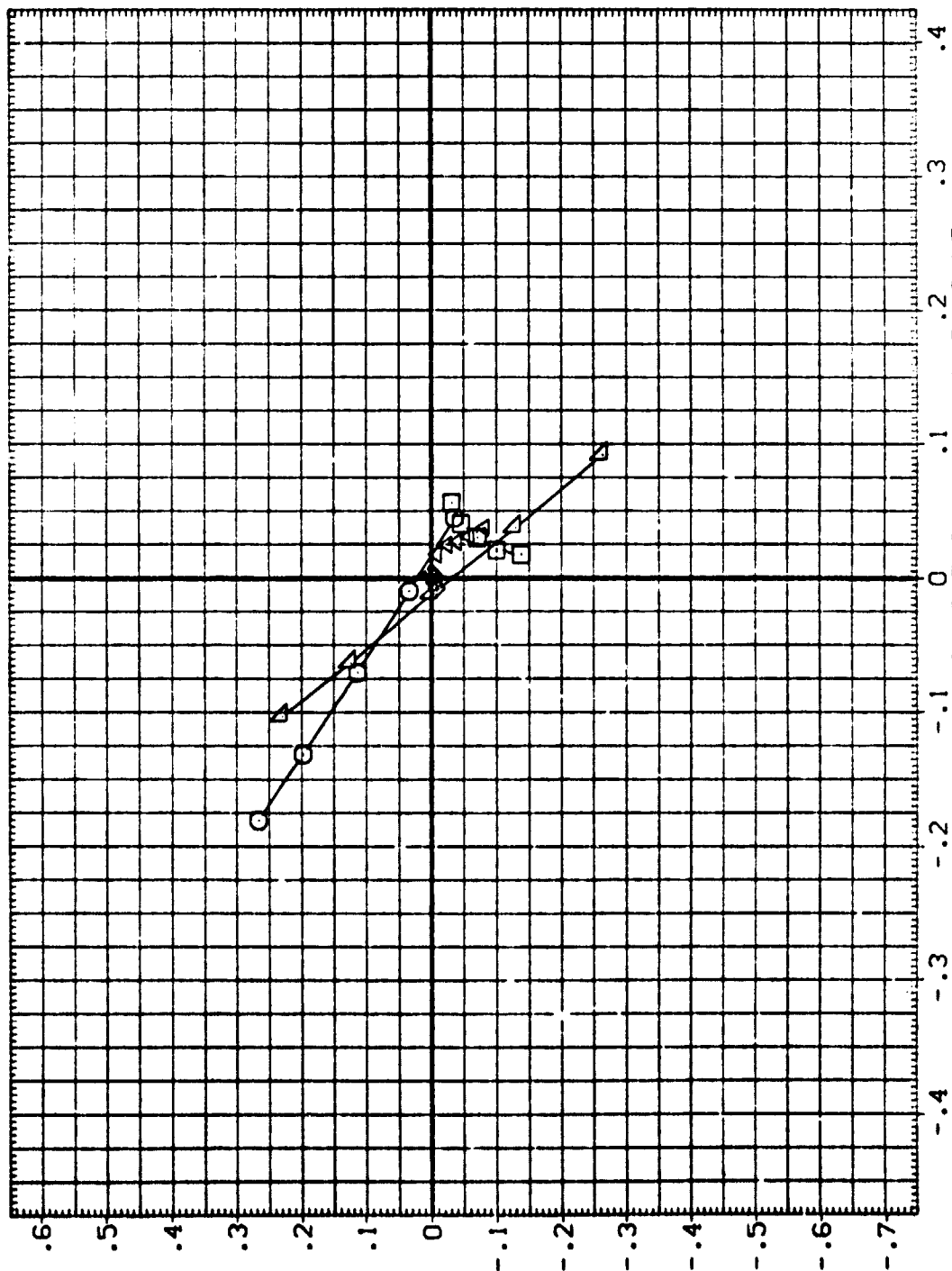


FIG. 4 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4

(G)BETA1 = 6.00

FOREBODY AXIAL FORCE COEFFICIENT, CAF

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(MET039)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(MET139)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	1.550	.000	LREF 1297.0000 IN.
(METL39)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	1.550	.000	BREF 1297.0000 IN.
(METR39)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	.000	.000	1.550	.000	XMRP 976.0000 IN. XT
(METI39)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	1.550	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

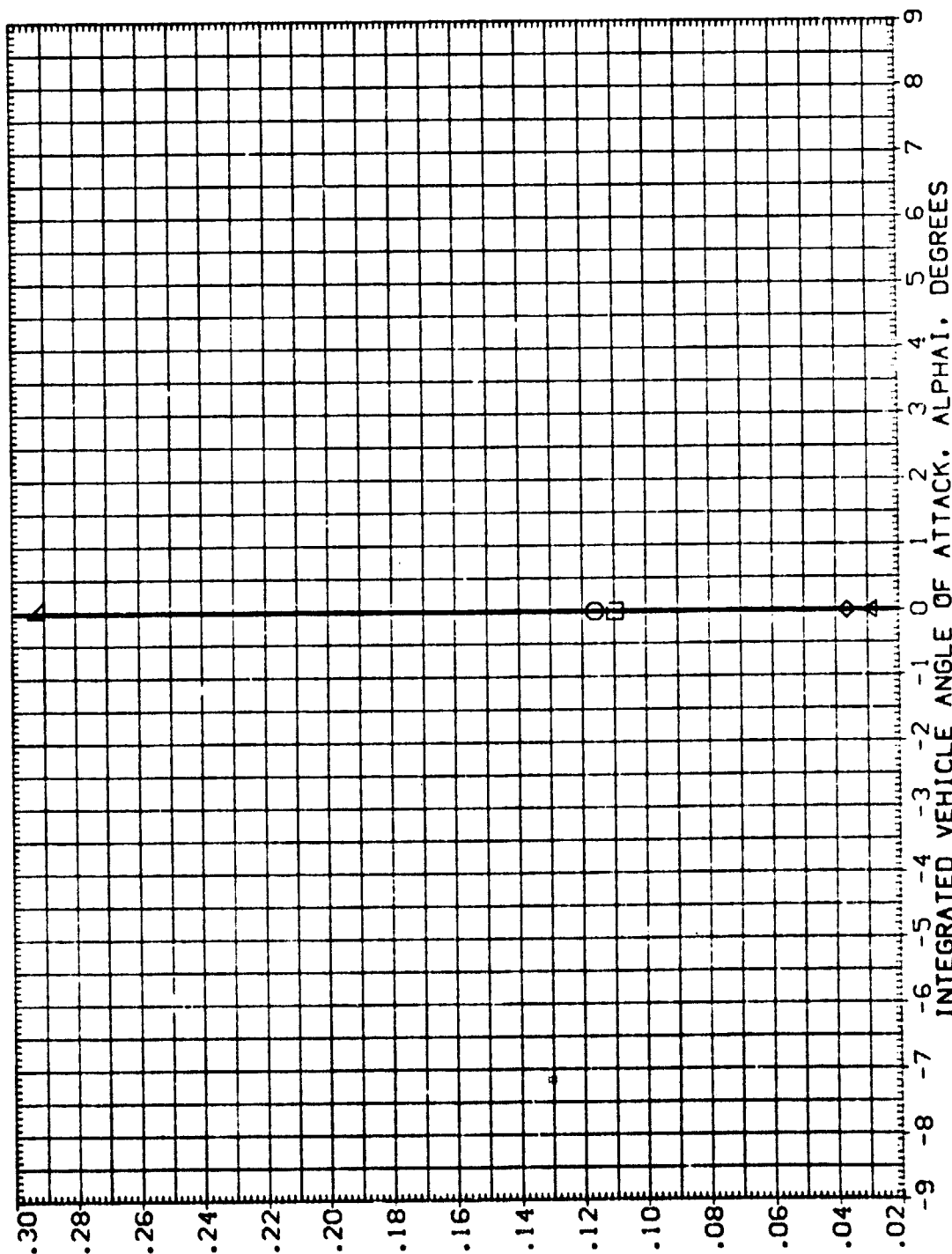


FIG. 5 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=0/0

(ALPHA) = -6.00

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(MET039) ORBITER-ALL M SEALED
 (MET139) TANK - ALL M SEALED
 (MET139) L-SRB - ALL M SEALED
 (MET139) R-LRB - ALL M SEALED
 (MET139) LVAP INT VEH ALL M SEALED

ELV-1B ELV-0B MACH SPDRBK REFERENCE INFORMATION SQ.FT.

.000 .000 1.550 .000 SREF 2690.0000 IN.
 .000 .000 1.550 .000 LREF 1297.0000 IN.
 .000 .000 1.550 .000 BREF 1297.0000 IN.
 .000 .000 1.550 .000 XHRP 976.0000 IN.
 .000 .000 1.550 .000 YHRP 400.0000 IN.
 .000 .000 1.550 .000 ZHRP 400.0000 IN.
 SCALE .0300

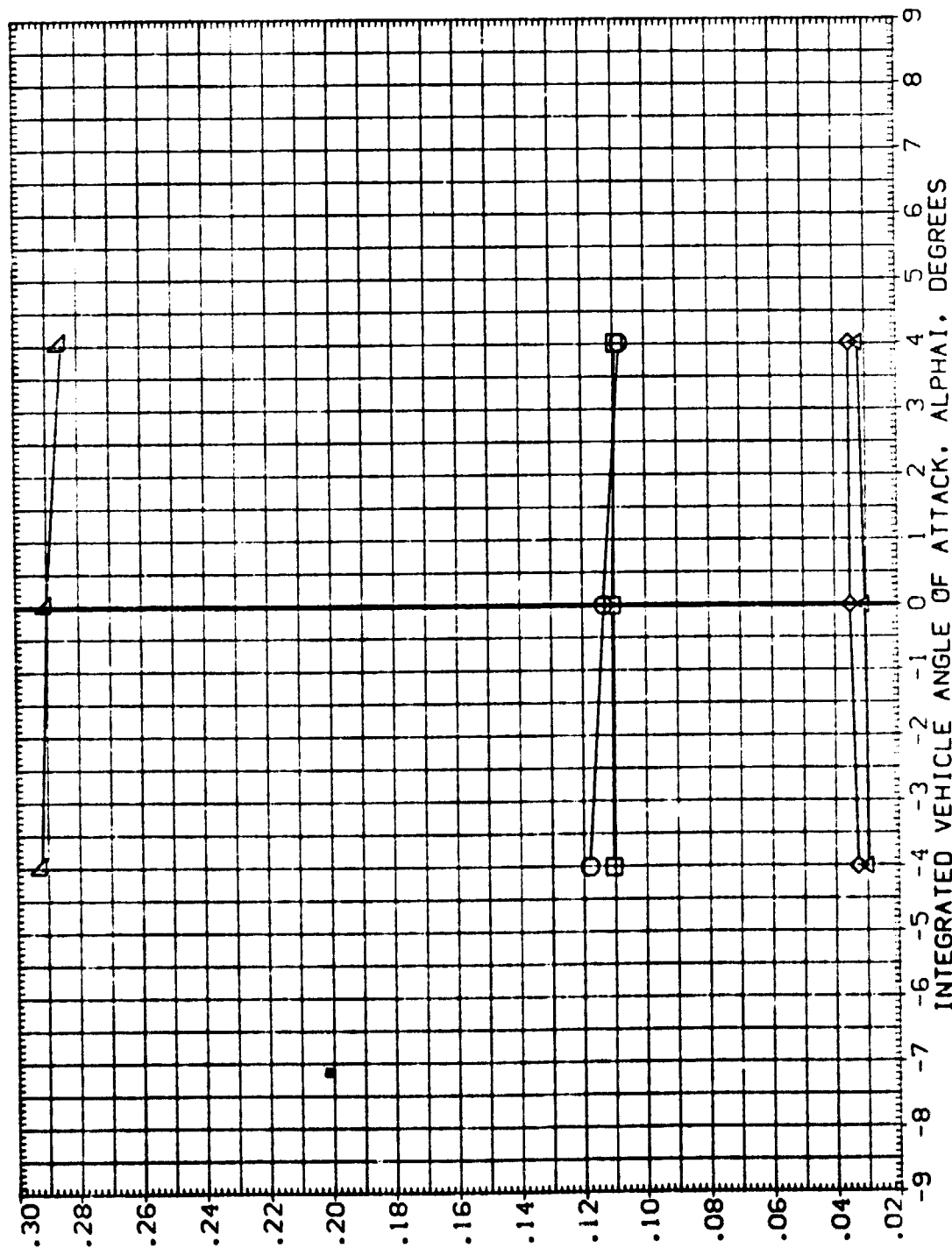


FIG. 5 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=1.55$ $DEV=0/0$
 (B)BETA1 = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPOBRK	REFERENCE INFORMATION
(MET099)	AMES97-019(IAB1) LVAP	.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(MET139)	AMES97-019(IAB1) LVAP	.000	.000	1.550	.000	LREF 1297.0000 IN.
(METL39)	AMES97-019(IAB1) LVAP	.000	.000	1.550	.000	BREF 1297.0000 IN.
(METR39)	AMES97-019(IAB1) LVAP	.000	.000	1.550	.000	XMRP 976.0000 IN. XT
(METI39)	AMES97-019(IAB1) LVAP	.000	.000	1.550	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

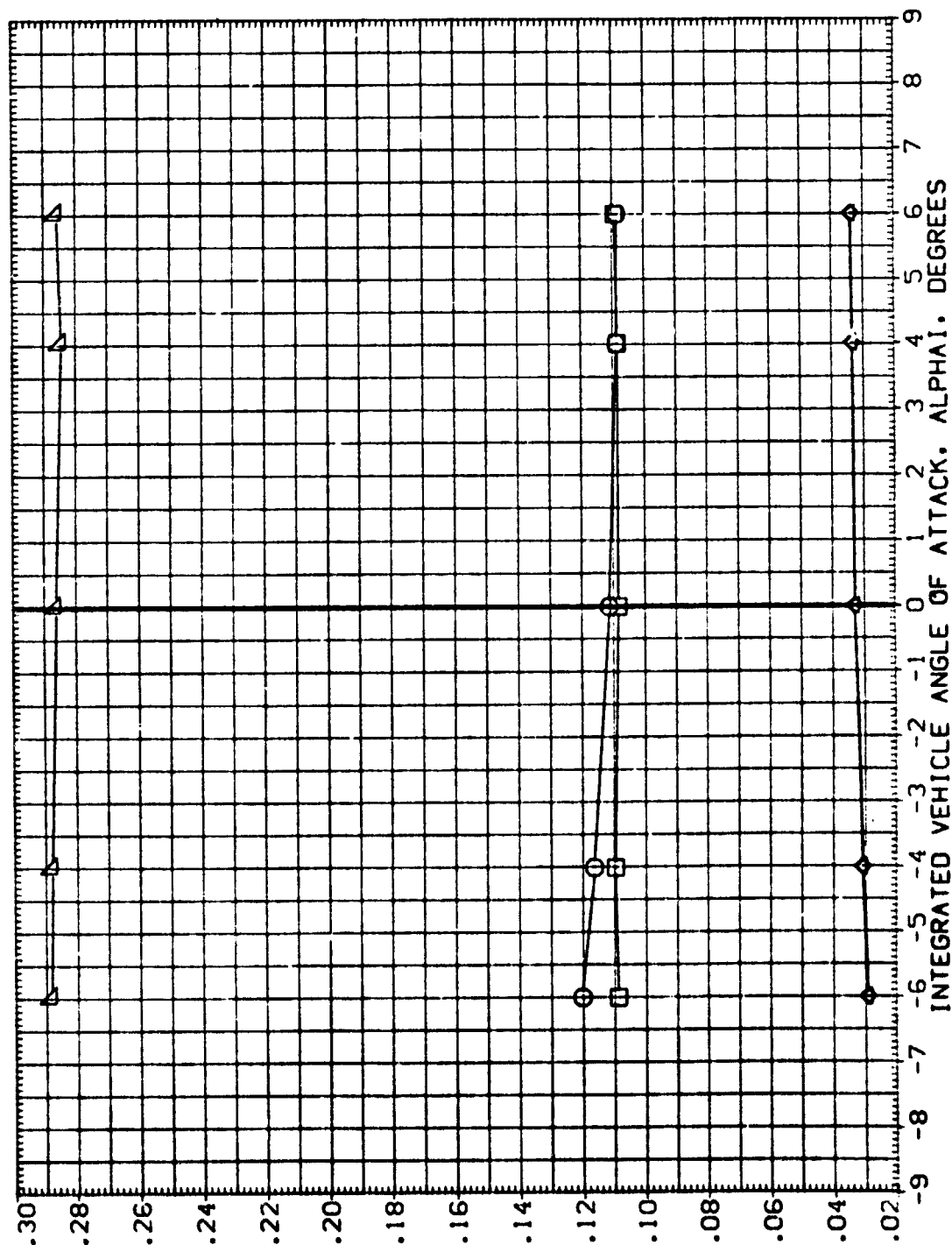


FIG. 5 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=0/0

(C)BET.I = .00

DATA SET SYMBOL
 (MET039)
 (MET139)
 (MET139)
 (MET139)
 (MET139)

CONFIGURATION DESCRIPTION
 APES97-019(IAB1) LVAP ORBITER-ALL HL SEALED
 APES97-019(IAB1) LVAP TANK - ALL HL SEALED
 APES97-019(IAB1) LVAP L-SRB - ALL HL SEALED
 APES97-019(IAB1) LVAP R-LRB - ALL HL SEALED
 APES97-019(IAB1) LVAP INT VEH ALL HL SEALED

ELV-1B ELV-0B MACH SF-OBK
 .000 .000 1.550 .000
 .000 .000 1.550 .000
 .000 .000 1.550 .000
 .000 .000 1.550 .000
 .000 .000 1.550 .000

REFERENCE INFORMATION
 SREF 2690.0000 SQ.FT.
 LREF 1297.0000 IN.
 BREF 1297.0000 IN.
 XMRP 976.0000 IN. XT
 YMRP 400.0000 IN. YT
 ZMRP 400.0000 IN. ZT
 SCALE .0300

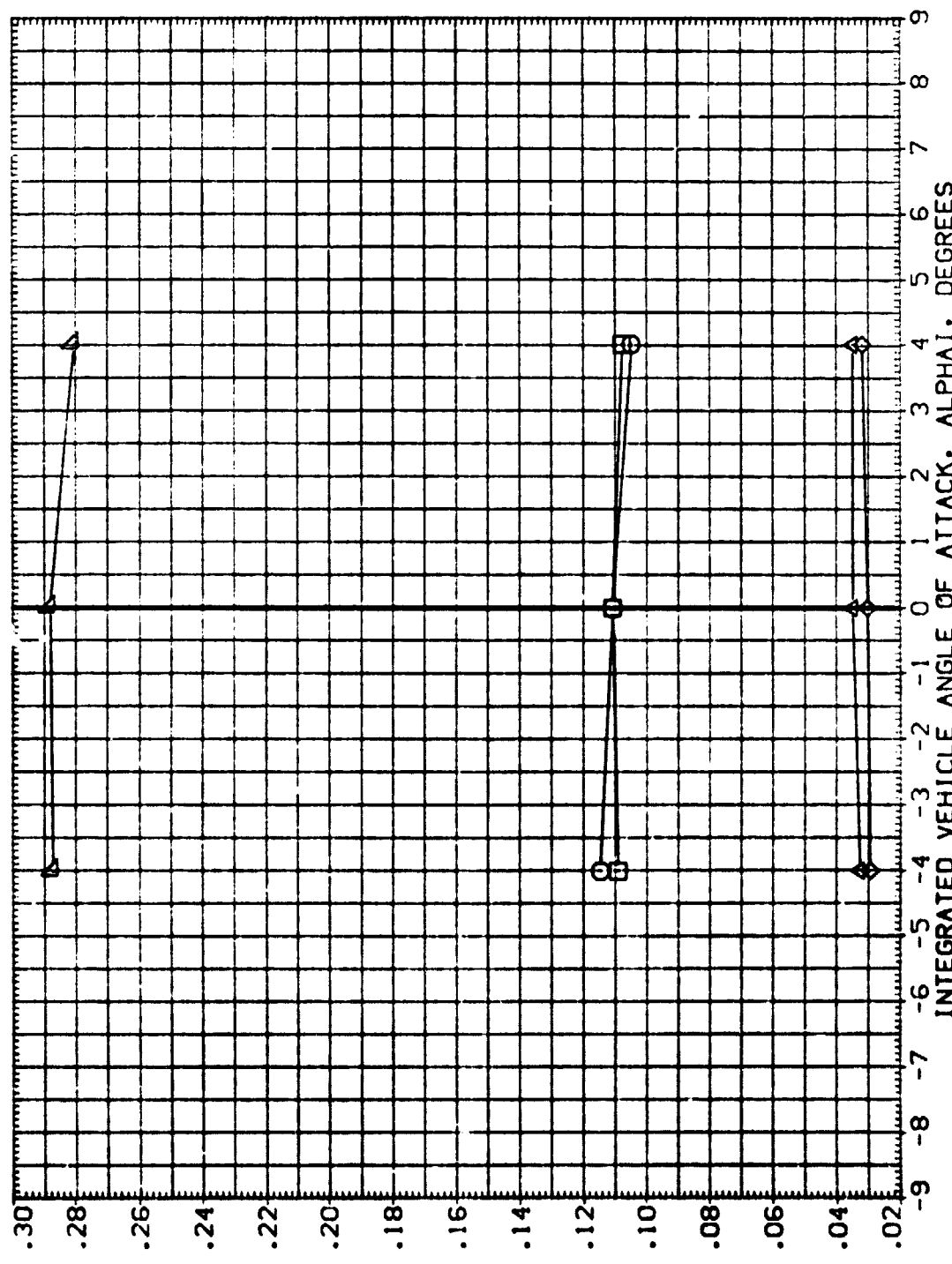


FIG. 5 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=0/0

(D)BETA.I = 4.00

REPRODUCIBILITY OF THE
TEST RESULTS IS 0.001

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDRK	REFERENCE INFORMATION
(MET039)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(MET139)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	1.550	.000	LREF 1297.0000 IN.
(METL39)	AMES97-019(IAB1) LVAP L-SER - ALL HL SEALED	.000	.000	1.550	.000	BREF 1297.0000 IN.
(METR39)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	.000	.000	1.550	.000	XMRP 976.0000 IN. XT
(METI39)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	1.550	.000	YMRP .0000 IN. YT
					ZMRP .0000 IN. ZT	SCALE .0300

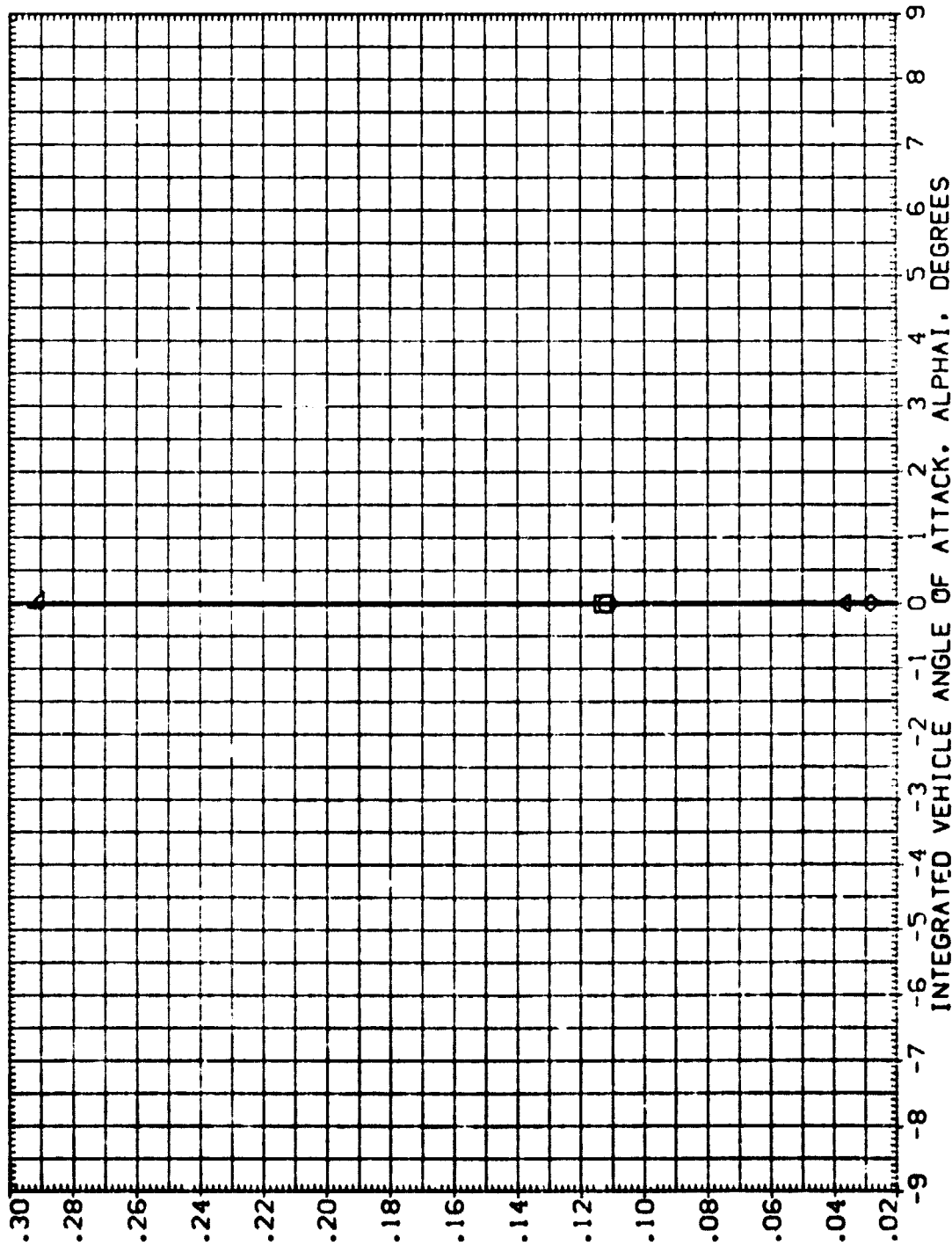


FIG. 5 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=0/0

(E)BET.1 = 6.00

DATA SET SYMBOL CONFIGURATION DESCRIPTION

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
AME597-0191(A81)	LVP ORBITER-ALL HL SEALED	.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
AME597-0191(A81)	LVP TANK - ALL HL SEALED	.000	.000	1.550	.000	LREF 1297.0000 IN.
AME597-0191(A81)	LVP L-SRB - ALL HL SEALED	.000	.000	1.550	.000	BREF 1297.0000 IN.
AME597-0191(A81)	LVP R-LRB - ALL HL SEALED	.000	.000	1.550	.000	YMRP 976.0000 IN.
AME597-0191(A81)	LVP INT VEH - ALL HL SEALED	.000	.000	1.550	.000	ZMRP 400.0000 IN.
AME597-0191(A81)	LVP	.000	.000	1.550	.000	SCALE .0300

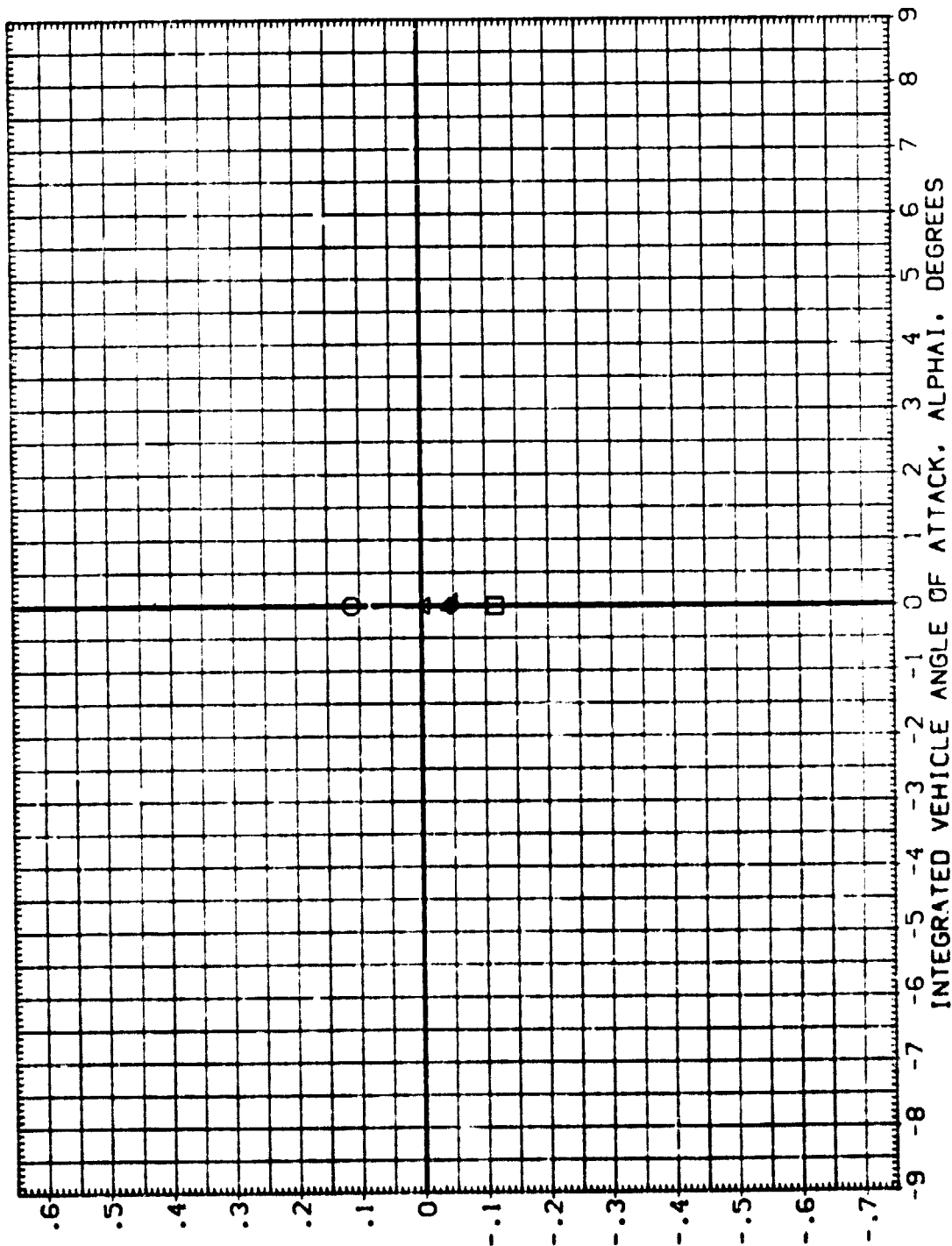
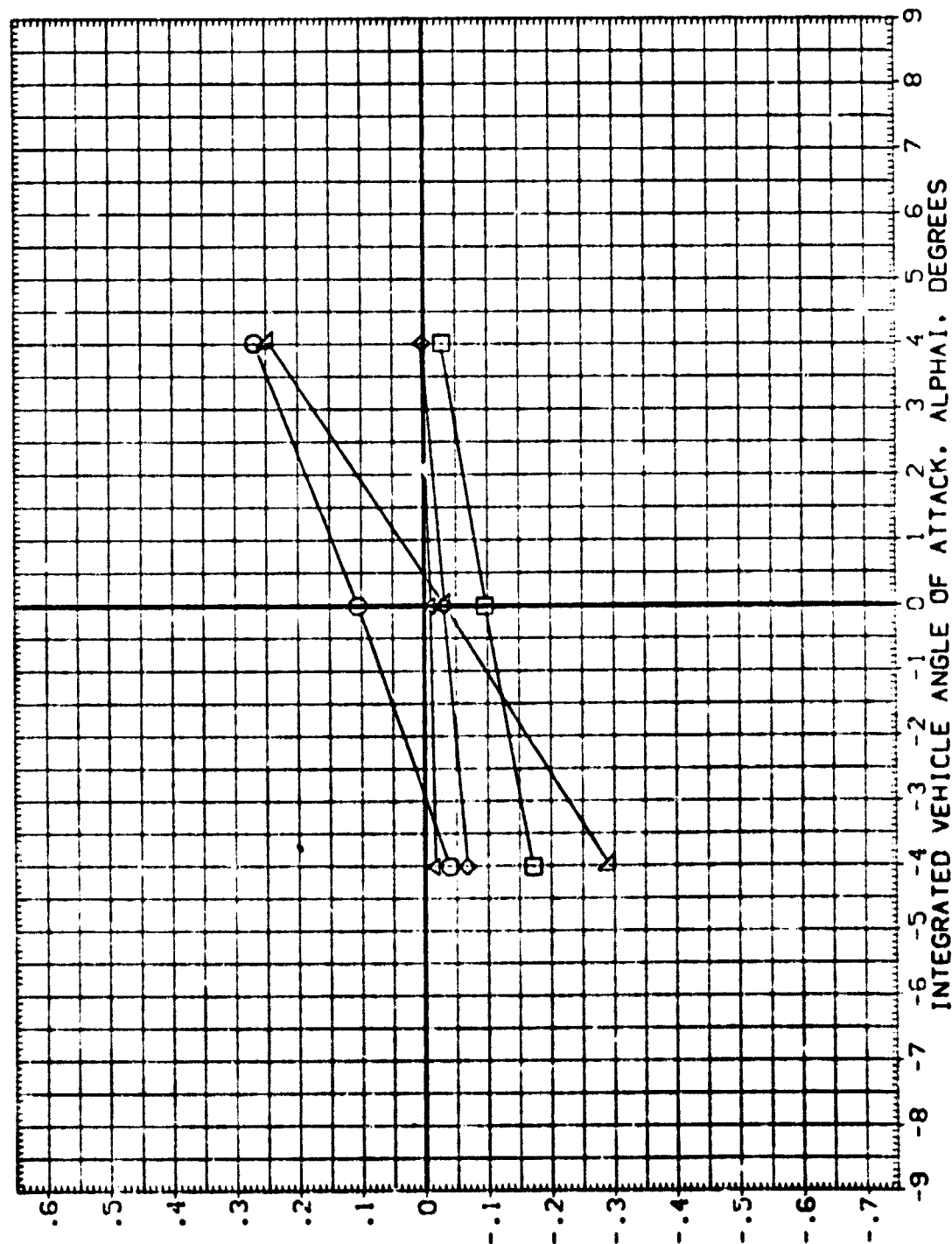


FIG. 5 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=0/0

(A)BET.1 = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDRBK	REFERENCE INFORMATION
(MET039)	AMES97-019(IAB1) LVAP	.000	.000	1.550	.000	SREF 2690.0000 SO.FT.
(MET139)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	1.550	.000	LREF 1297.0000 IN.
(MET139)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	1.550	.000	BREF 1257.0000 IN. XT
(MET139)	AMES97-019(IAB1) LVAP R LRB - ALL HL SEALED	.000	.000	1.550	.000	YMRP 976.0000 IN. YT
(MET139)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	1.550	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300



FOREBODY NORMAL FORCE COEFFICIENT, CNF

FIG. 5 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS. M=1.55 DEV=0/0

DATA SET SYMBOL: **0000**

CONFIGURATION DESCRIPTION: AMES97-0191(A81) LVAP DRB1TER-ALL WL SEALED
 AMES97-0191(A81) LVAP TANK - ALL WL SEALED
 AMES97-0191(A81) LVAP L-SRB - ALL WL SEALED
 AMES97-0191(A81) LVAP R-LRB - ALL WL SEALED
 AMES97-0191(A81) LVAP INT VEN ALL WL SEALED

ELV-1B ELV-0B MACH SPOBRK REFERENCE INFORMATION

ELV-1B	ELV-0B	MACH	SPOBRK	SREF	2690.0000	50. FT.
.000	.000	1.530	.000	LREF	1297.0000	IN.
.000	.000	1.550	.000	BREF	1297.0000	IN.
.000	.000	1.550	.000	KMRP	976.0000	IN. XT
.000	.000	1.550	.000	VMRP	.0000	IN. VT
.000	.000	1.550	.000	2MRP	400.0000	IN. ZT
				SCALE	.0300	

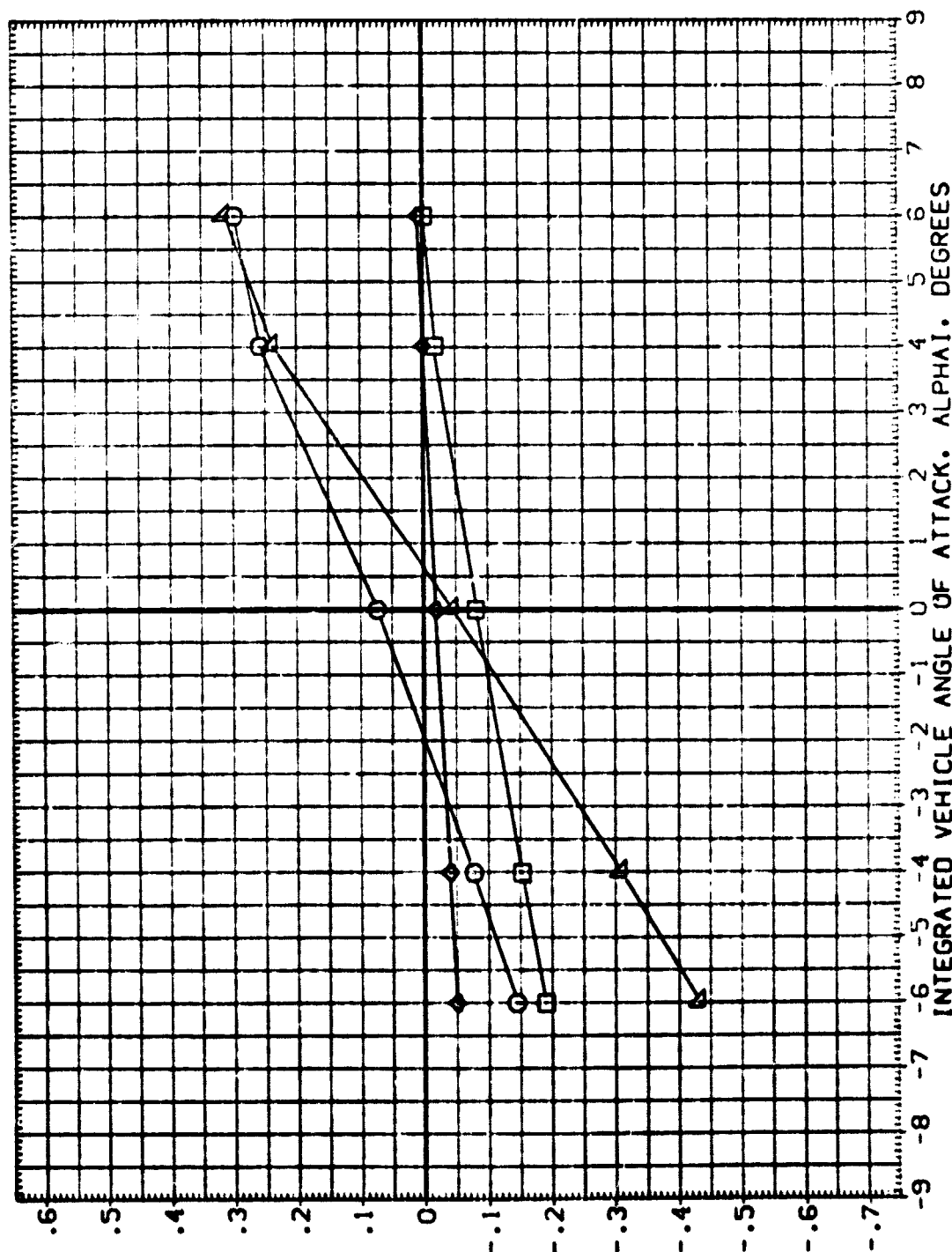


FIG. 5 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS. M=1.55 DEV=0/0

(C)BETAL = .00

FOREBODY NORMAL FORCE COEFFICIENT, CNF

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-09	MACH	SPDRK	REFERENCE INFORMATION			
(MET039)	ANES97-019C(AB1) LVAP CRBITER-ALL ML SEALED	.000	.000	1.550	.000	SREF	2690.0000	50. FT.	
(MET139)	ANES97-019C(AB1) LVAP TANK - ALL ML SEALED	.000	.000	1.550	.000	LREF	1297.0000	IN.	
(MET139)	ANES97-019C(AB1) LVAP L-GRD - ALL ML SEALED	.000	.000	1.550	.000	BREF	1297.0000	IN.	XT
(METR39)	ANES97-019C(AB1) LVAP R-LRB ALL ML SEALED	.000	.000	1.550	.000	YMRP	976.0000	IN.	YT
(MET139)	ANES97-019C(AB1) LVAP INT VEH ALL ML SEALED	.000	.000	1.550	.000	ZMRP	400.0000	IN.	ZT
						SCALE	.0300		

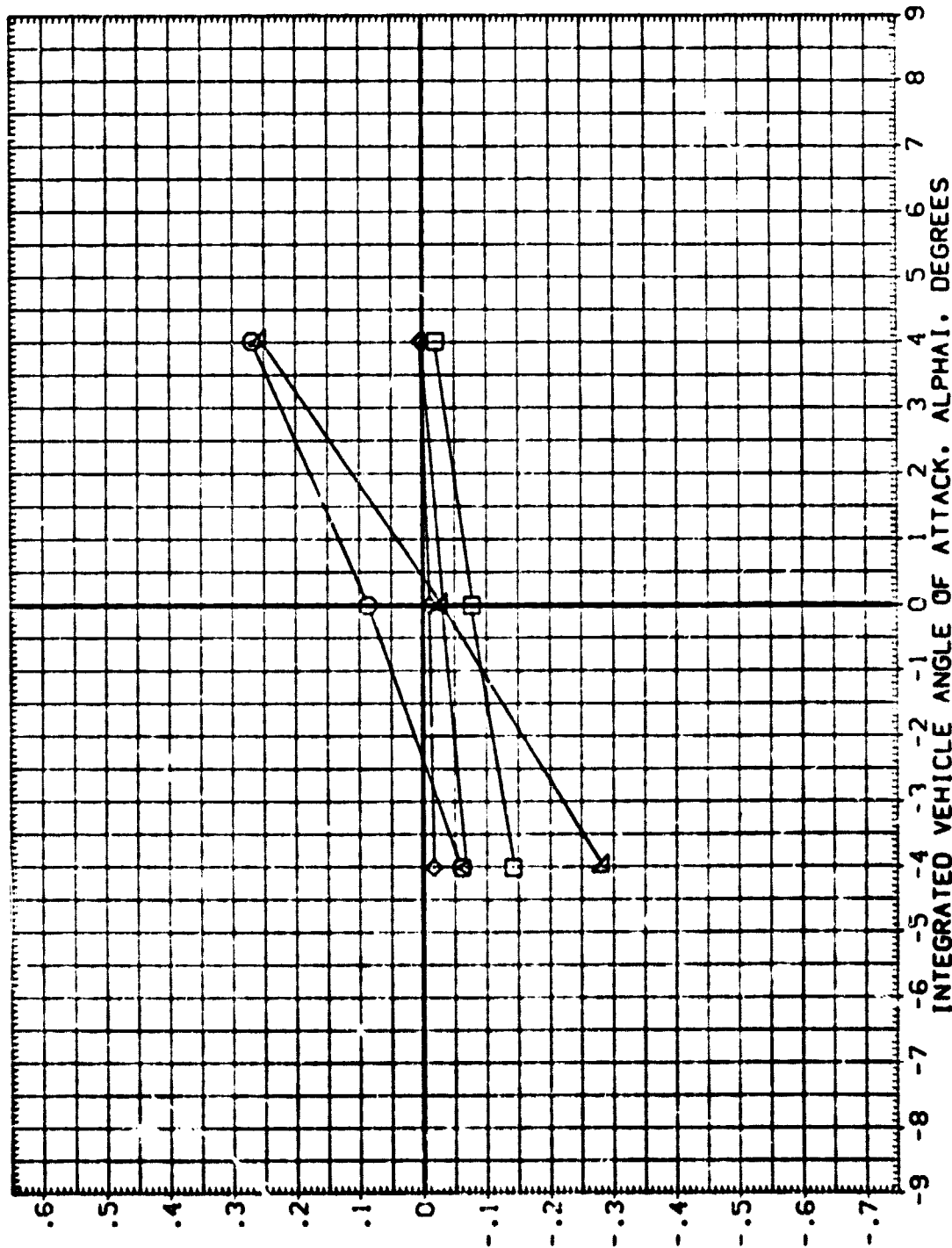


FIG. 5 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=0/0

(0)BET. = 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(ME1039)	AMES97-019(1A81) LVAP ORBITTER-ALL HL SEALED	.000	.000	1.550	.000	SREF 2690.0000 SO.FT.
(ME1139)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	.000	.000	1.550	.000	LREF 1297.0000 IN.
(ME1239)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	.000	.000	1.550	.000	BREF 1297.0000 IN.
(ME1339)	AMES97-019(1A81) LVAP R-LRB ALL HL SEALED	.000	.000	1.550	.000	XMRP 976.0000 IN. XT
(ME1439)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	.000	.000	1.550	.000	YMRP .0000 IN. YT
(ME1539)						ZMRP 400.0000 IN. ZT
						SCALE .0300

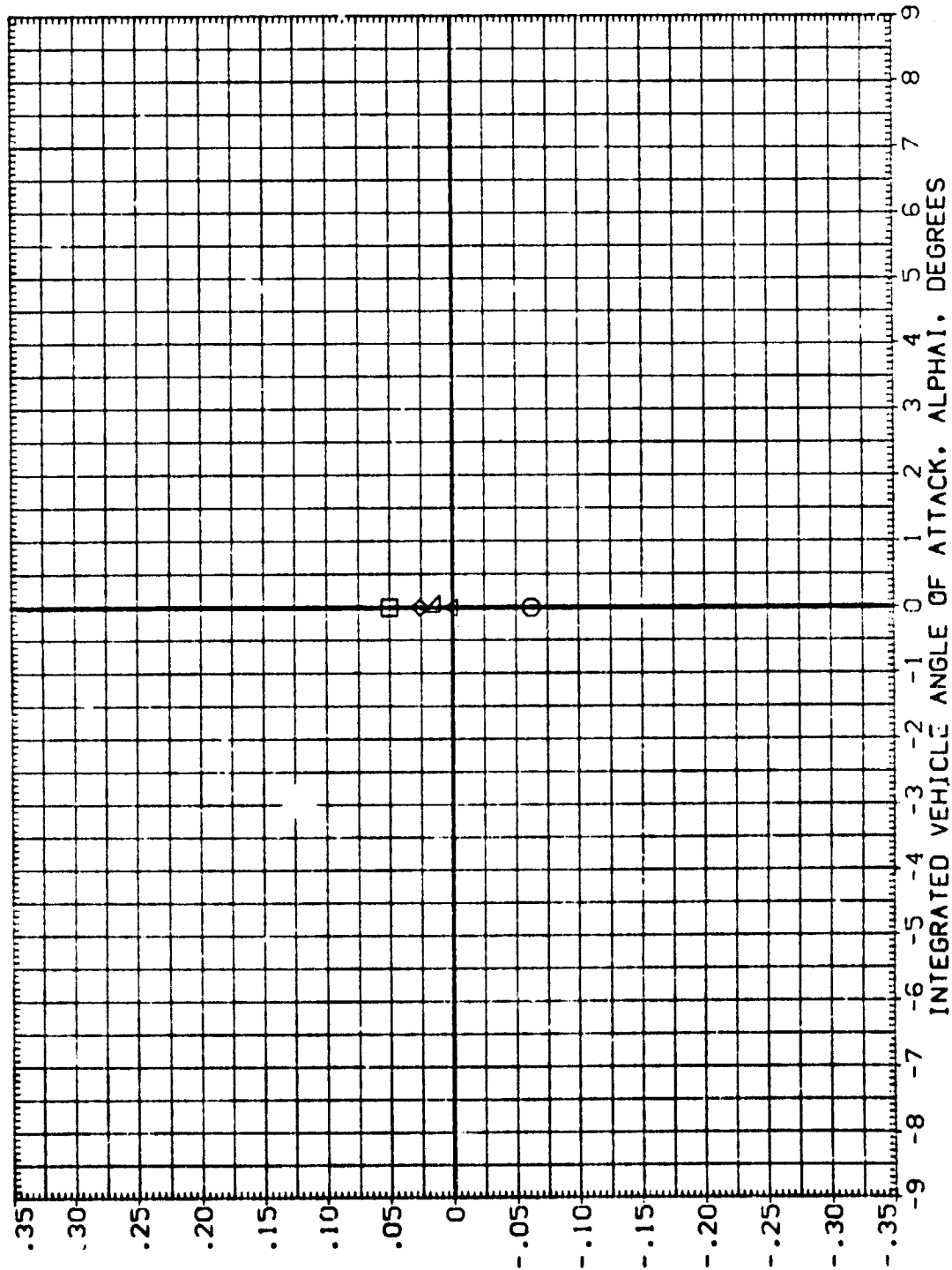
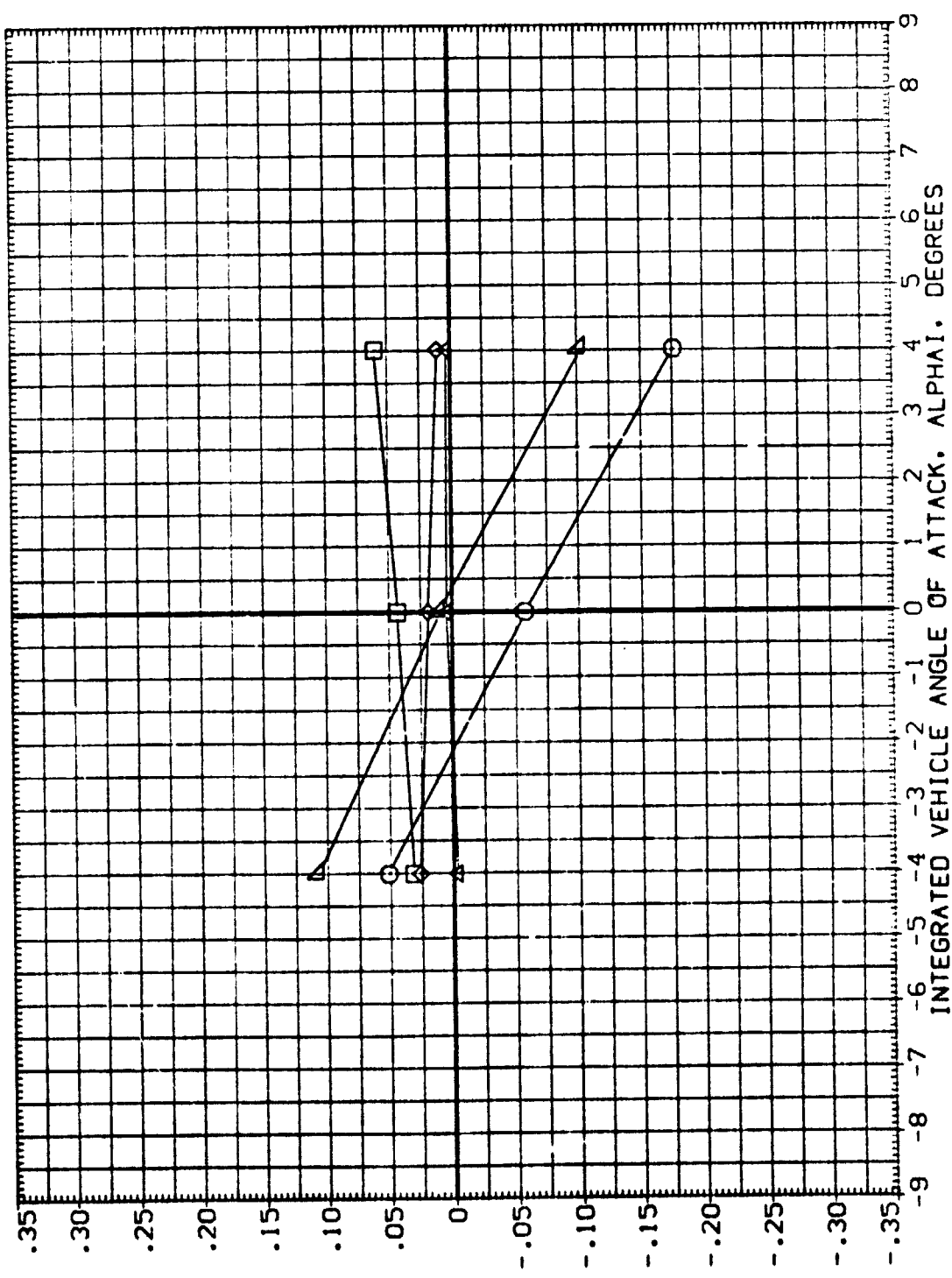


FIG. 5 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=0/0

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPCRK	REFERENCE INFORMATION
(MET039)	□	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	.000	.000	1.550	.000	SREF 2690.0000 SO.FT.
(MET139)	◇	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	1.550	.000	LREF 1297.0000 IN.
(MET139)	◇	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	1.550	.000	BREF 1297.0000 IN.
(MET139)	◇	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	.000	.000	1.550	.000	XMRP 976.0000 IN.
(MET139)	◇	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	1.550	.000	YMRP 400.0000 IN.
							ZMRP 400.0000 IN.
							SCALE .0300

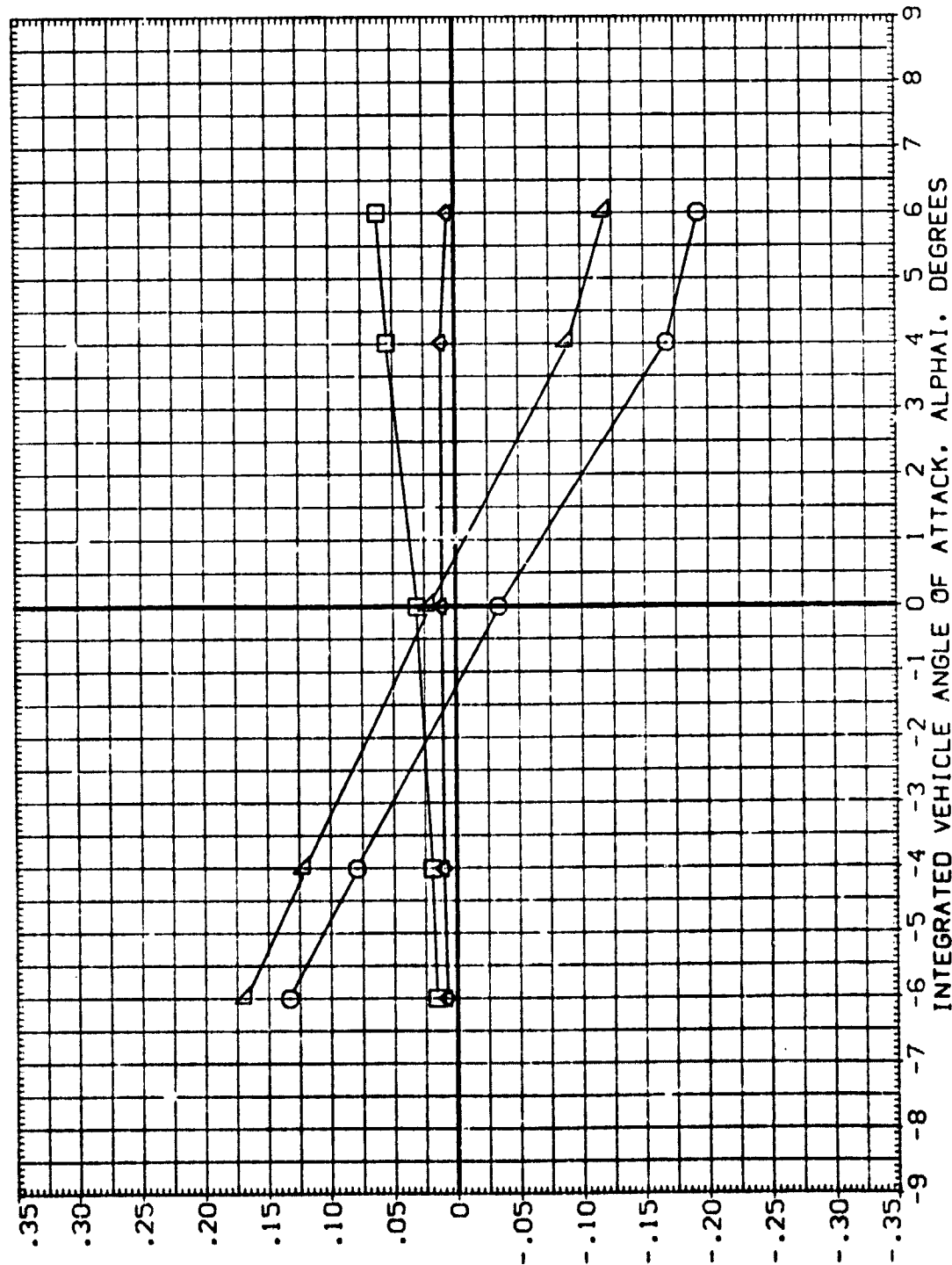


FOREBODY PITCHING MOMENT COEFFICIENT, CLMF

FIG. 5 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=0/0

(B)BETAI = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-09	MACH	SPDRK	REFERENCE INFORMATION
(MET039)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	.000	.000	1.550	.000	SREF 2690.0000 SO.FT.
(MET139)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	1.550	.000	LREF 1297.0000 IN.
(MET139)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	1.550	.000	BREF 1297.0000 IN. XT
(MET139)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	.000	.000	1.550	.000	YMRP 9/6.0000 IN. YT
(MET139)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	1.550	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300



FOREBODY PITCHING MOMENT COEFFICIENT, CLM

FIG. 5 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=0/0

FOREBODY PITCHING MOMENT COEFFICIENT, CLMF

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(MET039)	AMES97-019(1A81) LVAP CRBITTER-ALL HL SEALED	.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(MET139)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	.000	.000	1.550	.000	LREF 1297.0000 IN.
(METL39)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	.000	.000	1.550	.000	BREF 1297.0000 IN.
(METR39)	AMES97-019(1A81) LVAP R-LRB - ALL HL SEALED	.000	.000	1.550	.000	YMRP 976.0000 IN.
	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	.000	.000	1.550	.000	ZMRP 400.0000 IN.
						SCALE .0300

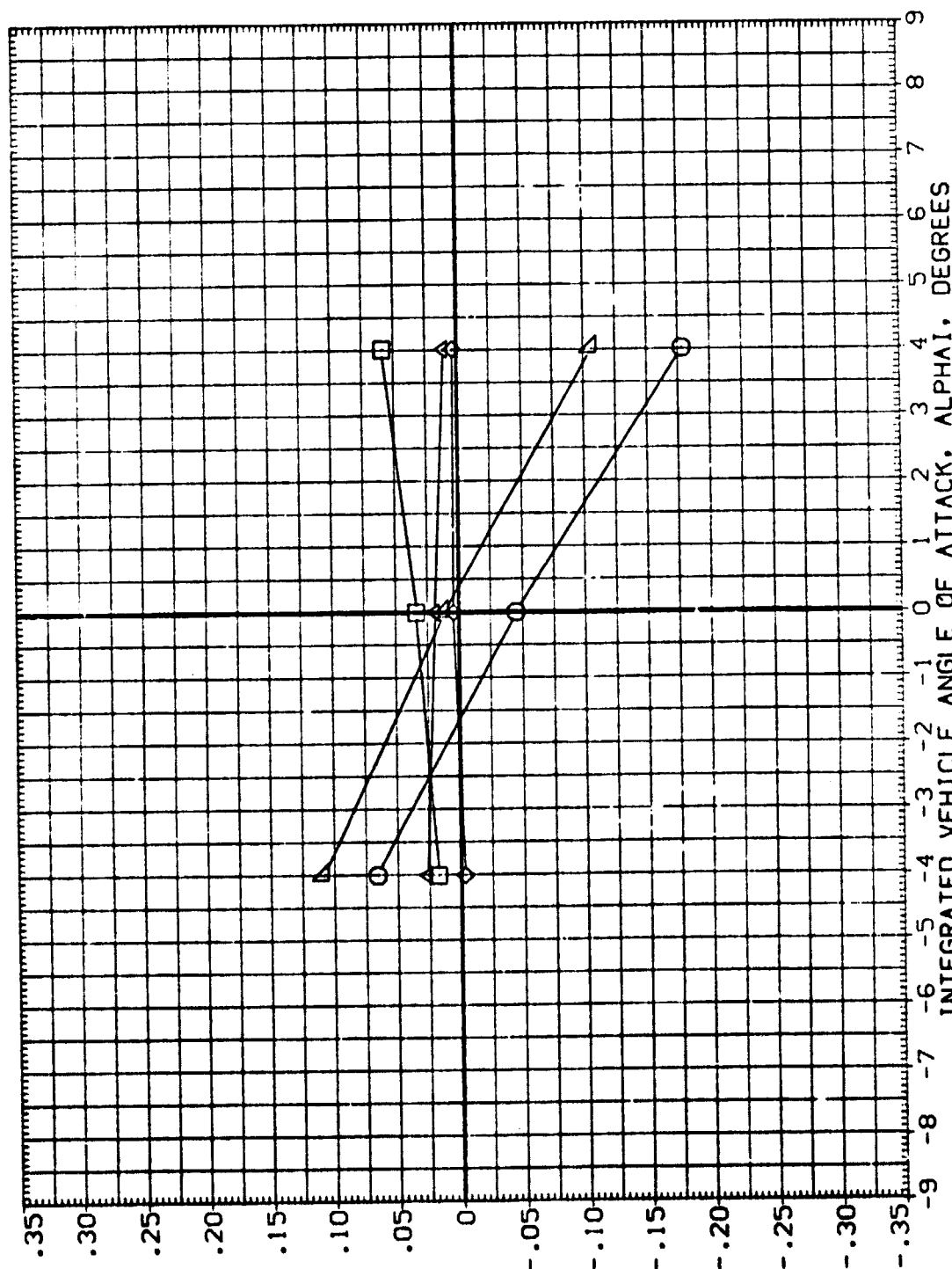


FIG. 5 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=0/0

(D)BET.I = 4.00

REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(MET039)	AMES97-019(1A81) LVAP ORBITER-ALL HL SEALED	.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(MET139)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	.000	.000	1.550	.000	LREF 1297.0000 IN.
(MET139)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	.000	.000	1.550	.000	BREF 1297.0000 IN.
(MET139)	AMES97-019(1A81) LVAP R-LRB ALL HL SEALED	.000	.000	1.550	.000	XMRP 976.0000 IN.
(MET139)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	.000	.000	1.550	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

FOREBODY PITCHING MOMENT COEFFICIENT, CLMF

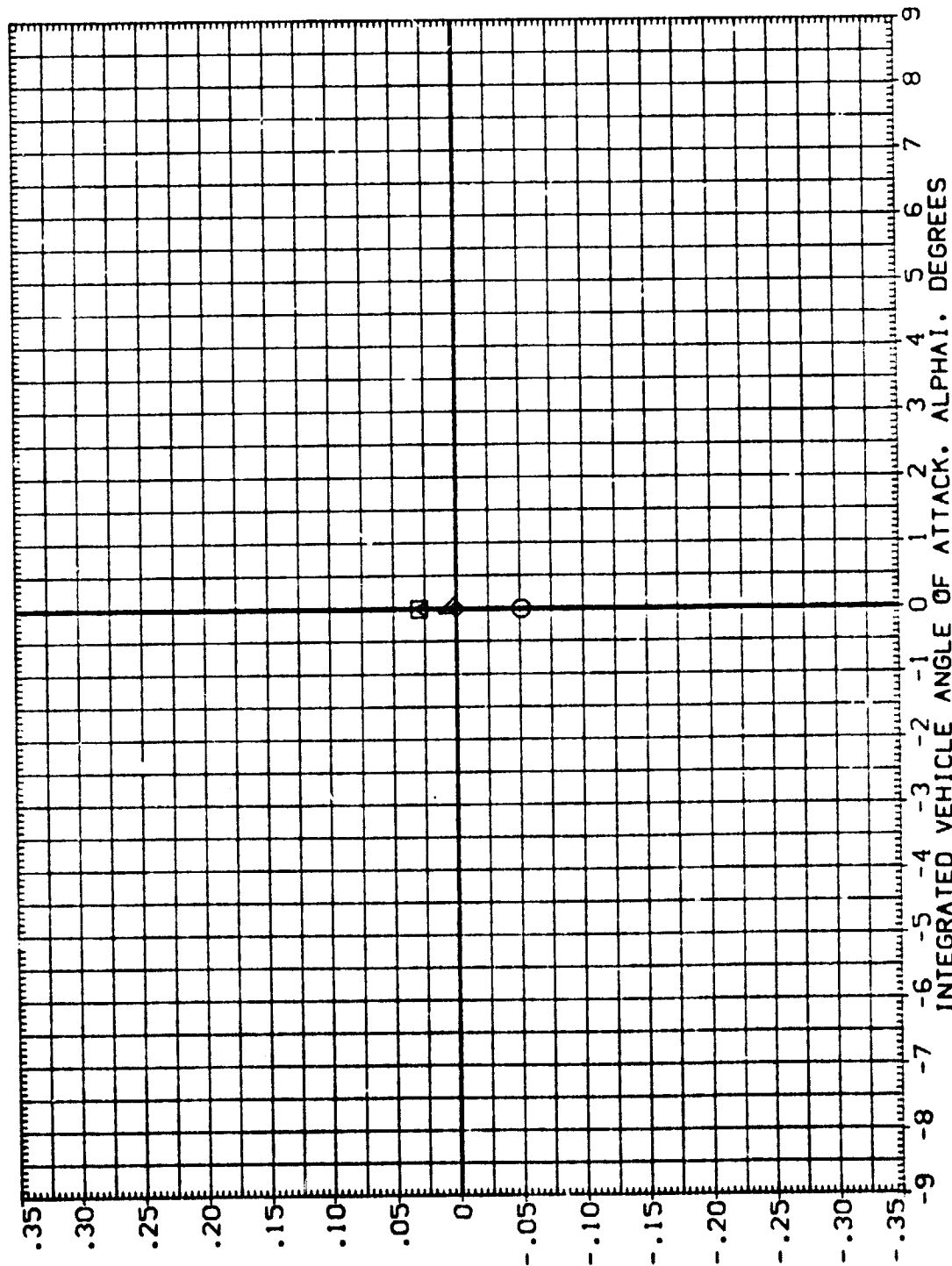


FIG. 5 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=0/0

(E)BET 1 = 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRBK	REFERENCE INFORMATION
(MET039)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	.000	.000	1.550	.000	SREF 2690.0000 SO.FT.
(MET139)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	1.550	.000	LREF 1297.0000 IN.
(METL39)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	1.550	.000	BREF 1297.0000 IN. XT
(METR39)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	.000	.000	1.550	.000	YMRP 976.0000 IN. YT
(METI39)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	1.550	.000	ZMRP 450.0000 IN. ZT
						SCALE .0300

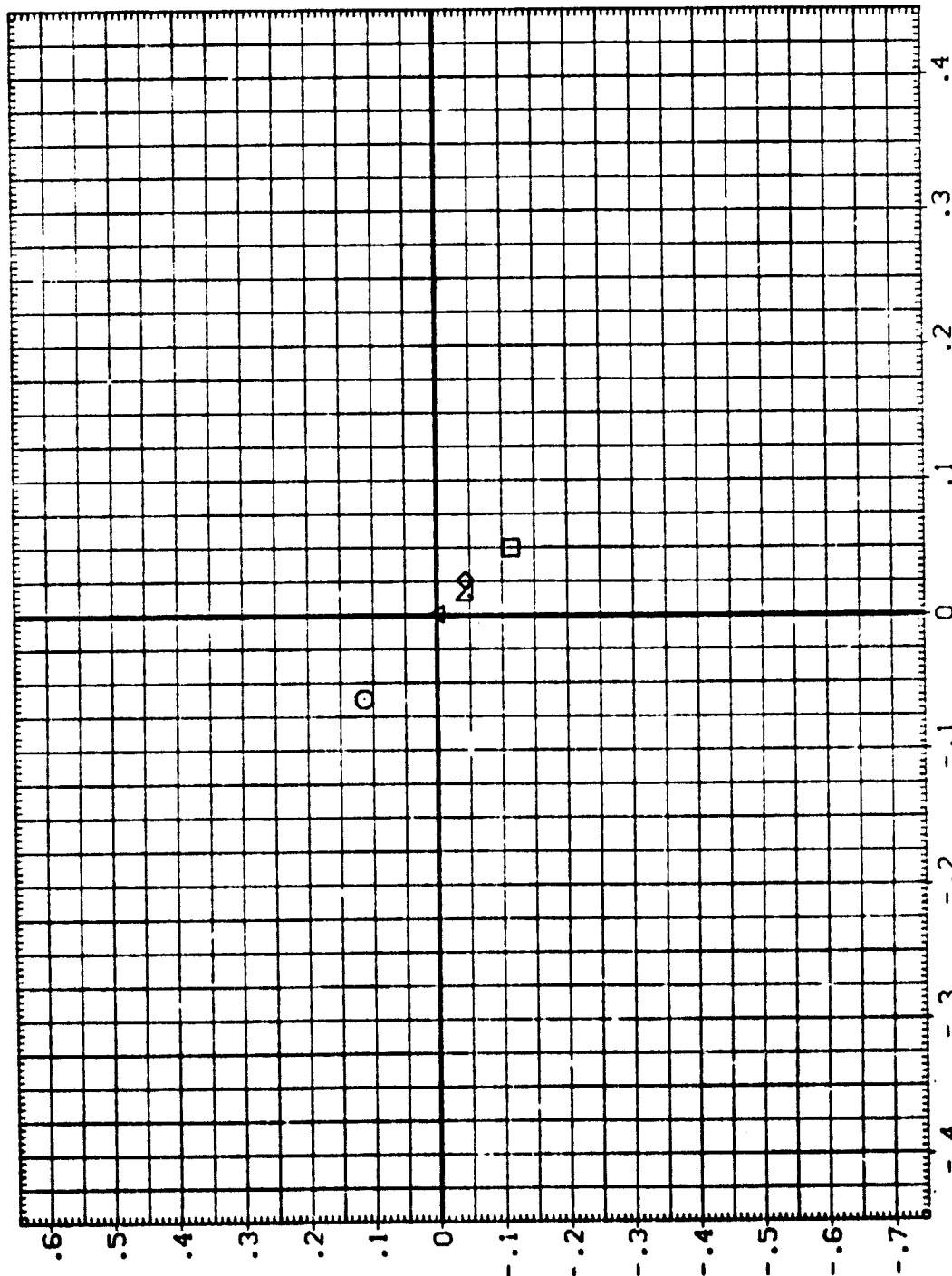


FIG. 5 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=0/0

(A) BET. 1 = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(MET039)	AMES97-019(1A81) LVAP ORBITER-ALL HL SEALED	.000	.000	1.550	.000	SREF 2590.0000 SQ.FT.
(MET139)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	.000	.000	1.550	.000	LREF 1297.0000 IN.
(MET139)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	.000	.000	1.550	.000	BREF 1297.0000 IN.
(MET139)	AMES97-019(1A81) LVAP R-LRB - ALL HL SEALED	.000	.000	1.550	.000	XMRP 976.0000 IN. XT
(MET139)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	.000	.000	1.550	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

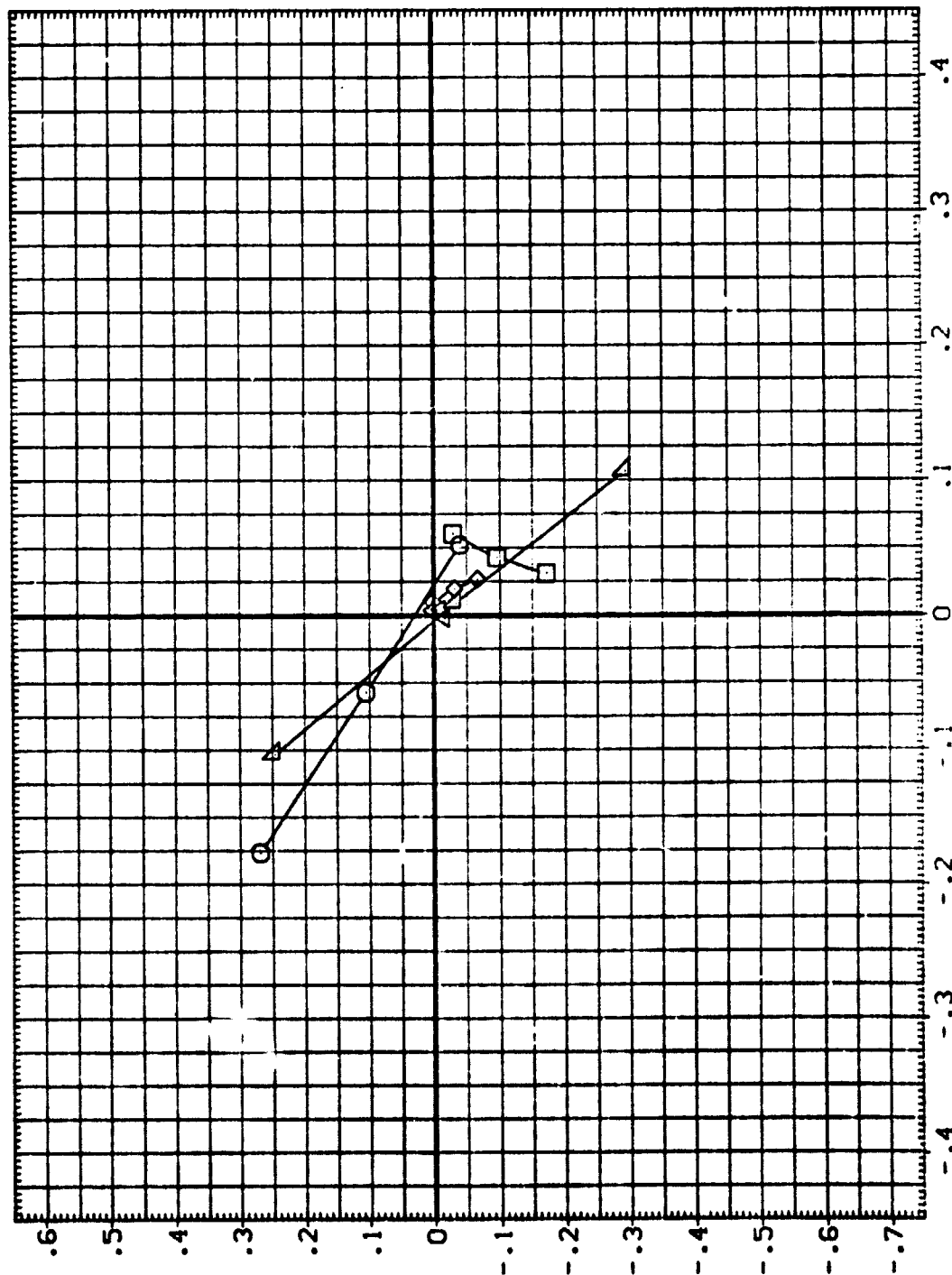


FIG. 5 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=0/0

(B)BET.1 = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	EI V-1B	ELV-OB	MACH	SPDRBK	REFERENCE	INFORMATION
(NET029)	ANE557-019(1A81) LVAP	SEALD	.000	1.550	.000	SREF	2690.0000
(NET109)	ANE557-019(1A81) LVAP	ORBITER-ALL	.000	1.550	.000	LREF	1297.0000
(NET139)	ANE557-019(1A81) LVAP	LAB - ALL	.000	1.550	.000	BREF	1297.0000
(NET139)	ANE557-019(1A81) LVAP	LAB - ALL	.000	1.550	.000	XMRP	976.0000
(NET139)	ANE557-019(1A81) LVAP	LAB - ALL	.000	1.550	.000	YMRP	.0000
(NET139)	ANE557-019(1A81) LVAP	INT VEH	.000	1.550	.000	ZMRP	400.0000
(NET139)	ANE557-019(1A81) LVAP	INT VEH	.000	1.550	.000	SCALE	.0300

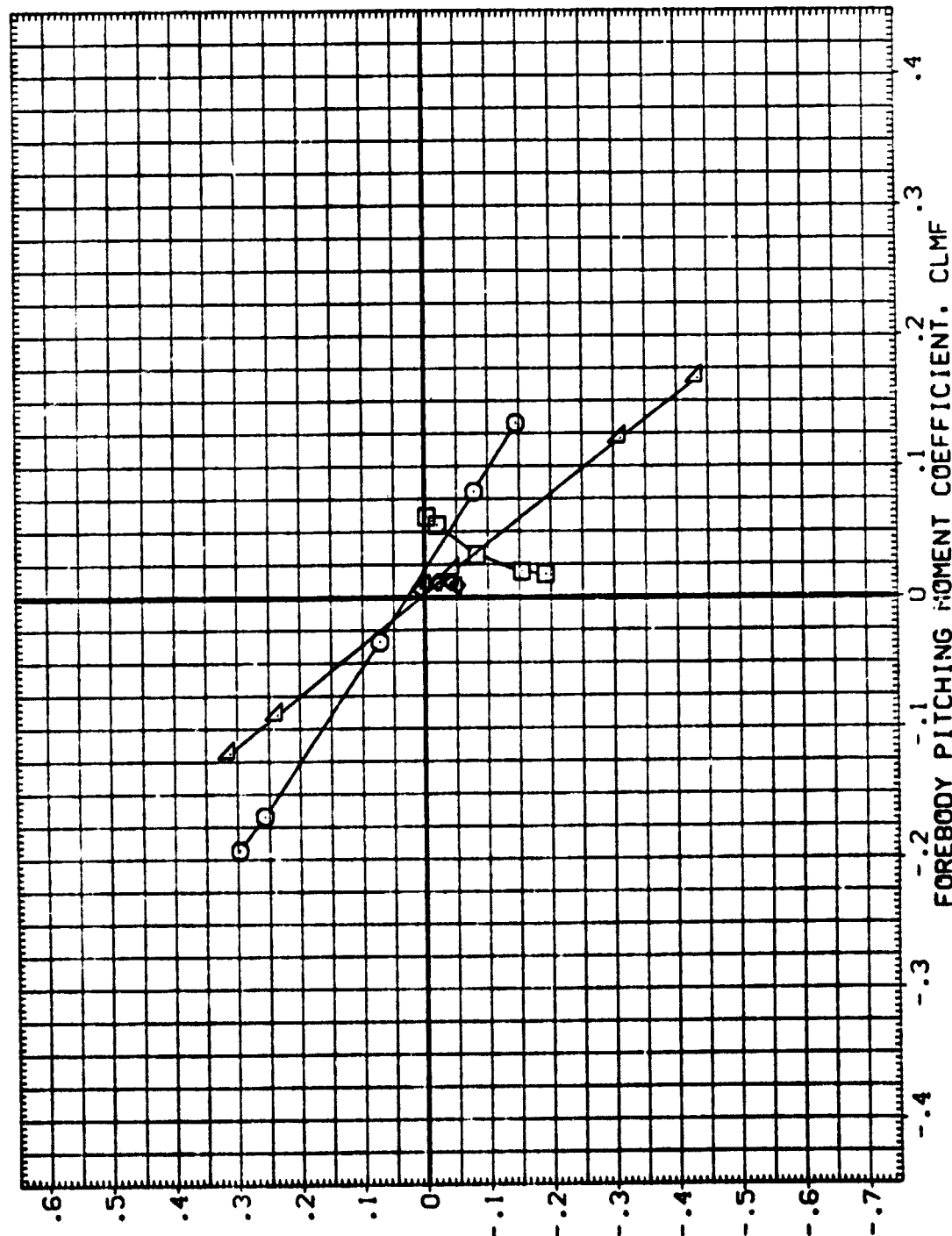


FIG. 5 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=0/0

CC(BET, I) = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(MET029)	APES97-019(1A81) LVAP ORBITTER-ALL ML SEALED	.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(MET139)	APES97-019(1A81) LVAP TANK - ALL ML SEALED	.000	.000	1.550	.000	LREF 1297.0000 IN.
(MET139)	APES97-019(1A81) LVAP L-SRB - ALL ML SEALED	.000	.000	1.550	.000	BREF 1297.0000 IN.
(MET139)	APES97-019(1A81) LVAP R-LRB - ALL ML SEALED	.000	.000	1.550	.000	XMRP 976.0000 IN.
(MET139)	APES97-019(1A81) LVAP INT VEH ALL ML SEALED	.000	.000	1.550	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

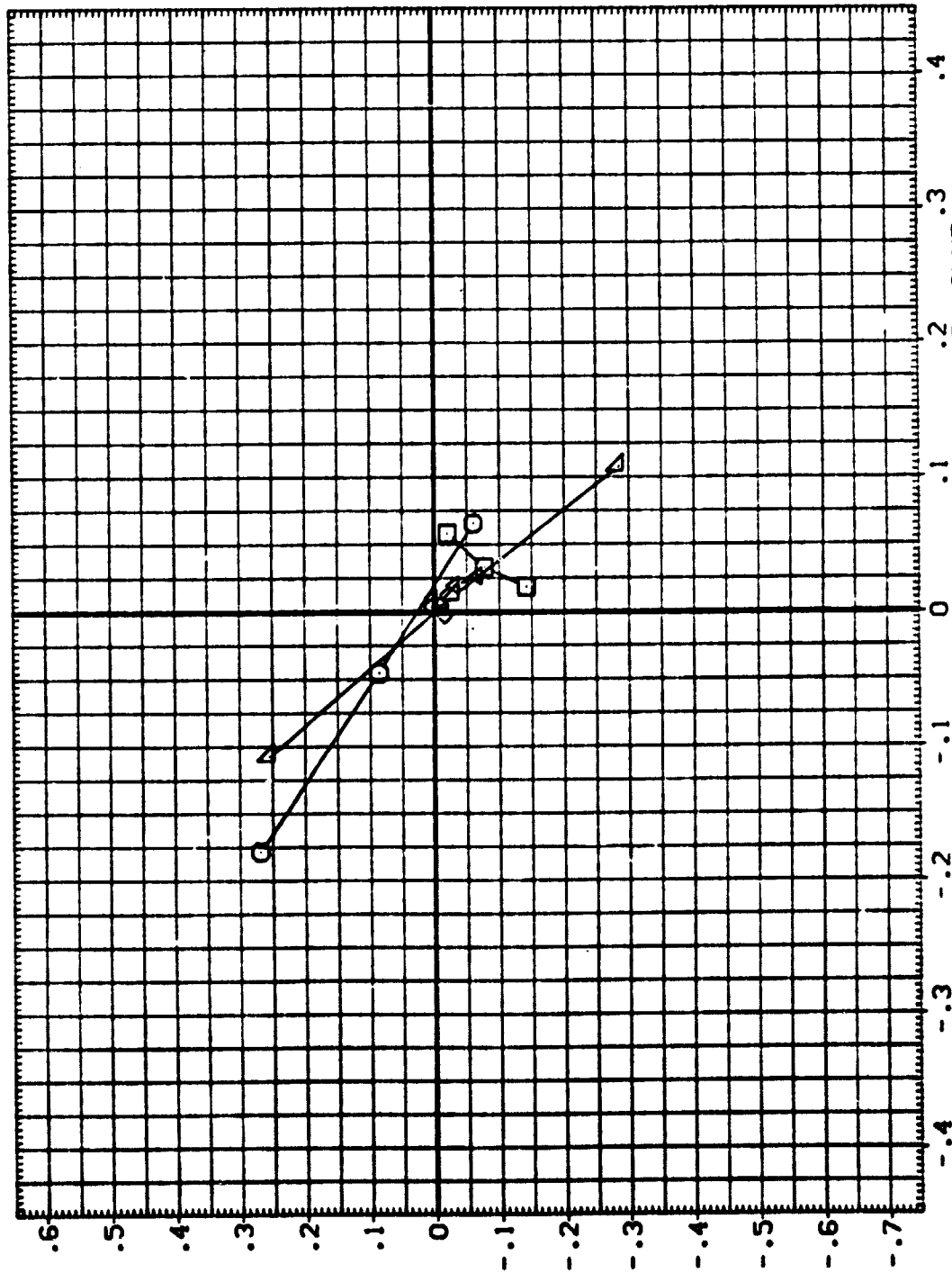


FIG. 5 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=0/0

(D)BET.1 = 4.00

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(MET039)	□	AMES97-019(1A81) LVAP ORBITER-ALL HL SEALED	.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(MET139)	□	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	.000	.000	1.550	.000	LREF 1297.0000 IN.
(METL39)	□	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	.000	.000	1.550	.000	BREF 1297.0000 IN.
(METR39)	□	AMES97-019(1A81) LVAP R-LRB - ALL HL SEALED	.000	.000	1.550	.000	XHRP 976.0000 IN. XT
(MET139)	□	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	.000	.000	1.550	.000	YHRP .0000 IN. YT
							ZHRP 400.0000 IN. ZT
							SCALE .0300

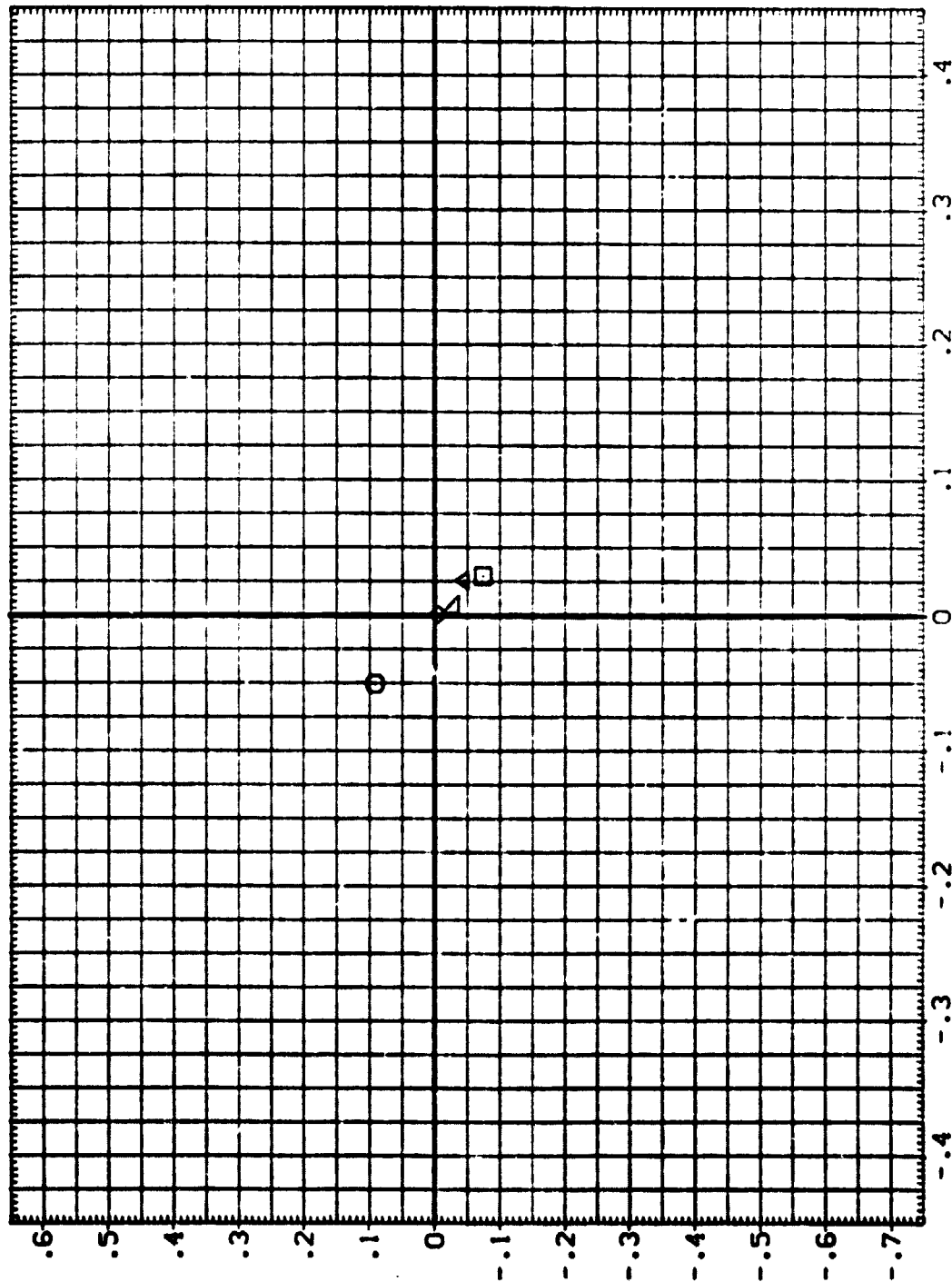


FIG. 5 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=0/0

(E)BET.1 = 6.00

FOREBODY AXIAL FORCE COEFFICIENT, C_{AF}

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(MET043)	AME597-019C(AB1) LVAP ORBITER-ALL HL SEALED	8.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(MET143)	AME597-019C(AB1) LVAP TANK - ALL HL SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(MET143)	AME597-019C(AB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN.
(MET143)	AME597-019C(AB1) LVAP R-LRB - ALL HL SEALED	8.000	.000	1.550	.000	YMRP 976.0000 IN. XT
(MET143)	AME597-019C(AB1) LVAP INT VEH ALL HL SEALED	8.000	.000	1.550	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

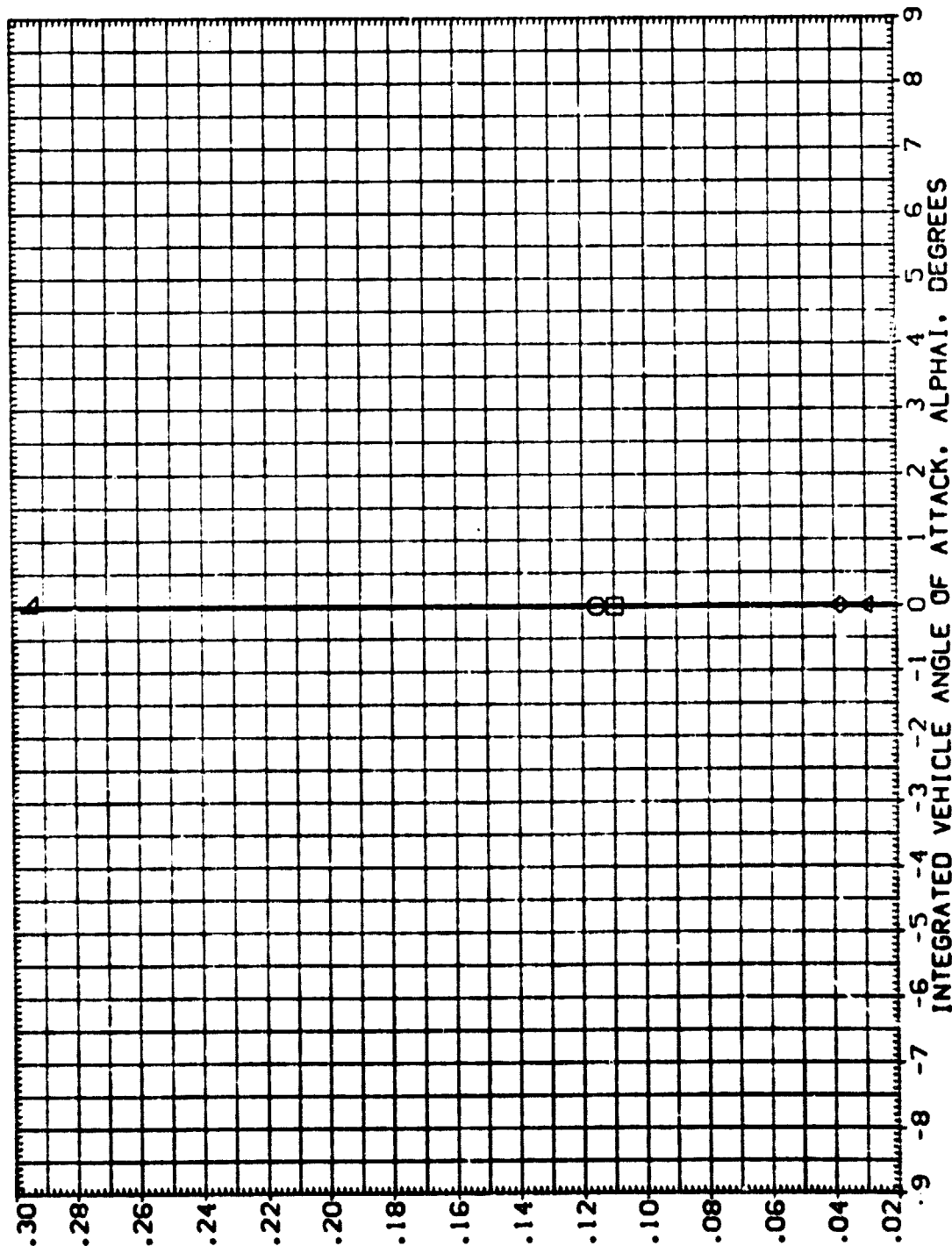


FIG. 6 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/C

(ABET) = -6.00

DATA SET SYMBOL CONFIGURATION DESCRIPTION

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-10	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(NET043)	AMES97-019(IAB1) LVAP ORBITER-ALL ML SEALED	8.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(NET143)	AMES97-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(NET143)	AMES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN.
(NET143)	AMES97-019(IAB1) LVAP R-LRB - ALL ML SEALED	8.000	.000	1.550	.000	XMRP 976.0000 IN. XT
(NET143)	AMES97-019(IAB1) LVAP INT VEH ALL ML SEALED	8.000	.000	1.550	.000	YMRP 400.0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

FOREBODY AXIAL FORCE COEFFICIENT, C_{AF}

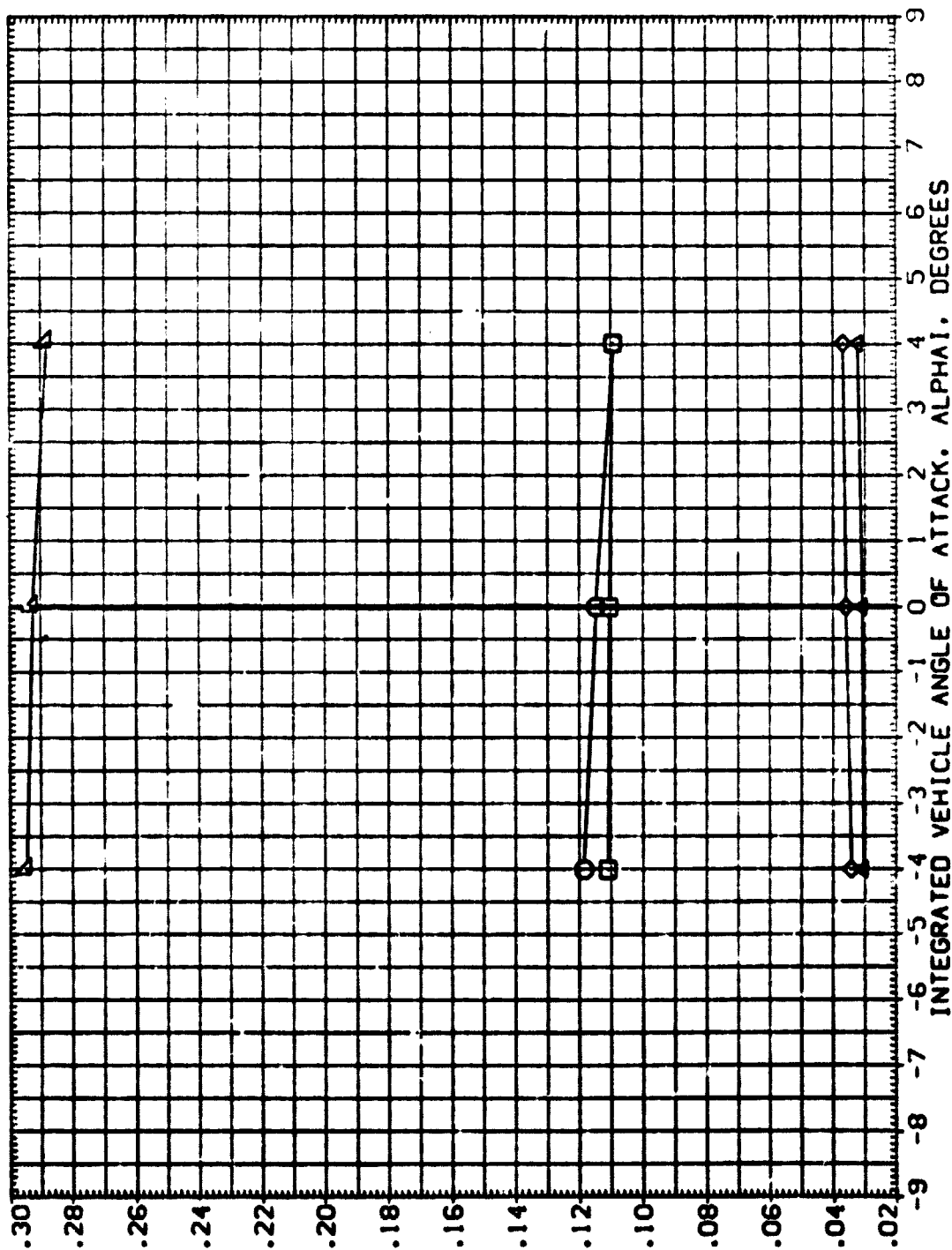


FIG. 6 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0

(B)BETA.I = -4.00

REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR

DA, SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(MET043)	AMES97-019(1A81) LVAP CRBITTER-ALL ML SEALED	8.000	.000	1.550	.000	SREF 2690.0000
(MET143)	AMES97-019(1A81) LVAP TANK - ALL ML SEALED	8.000	.000	1.550	.000	LREF 1297.0000
(MET143)	AMES97-019(1A81) LVAP L-SRB - ALL ML SEALED	8.000	.000	1.550	.000	BREF 1297.0000
(MET143)	AMES97-019(1A81) LVAP R-LRB - ALL ML SEALED	8.000	.000	1.550	.000	XMRP 976.0000
(MET143)	AMES97-019(1A81) LVAP INT VEH ALL ML SEALED	8.000	.000	1.550	.000	VMRP .0000
						ZMRP 400.0000
						SCALE .0300

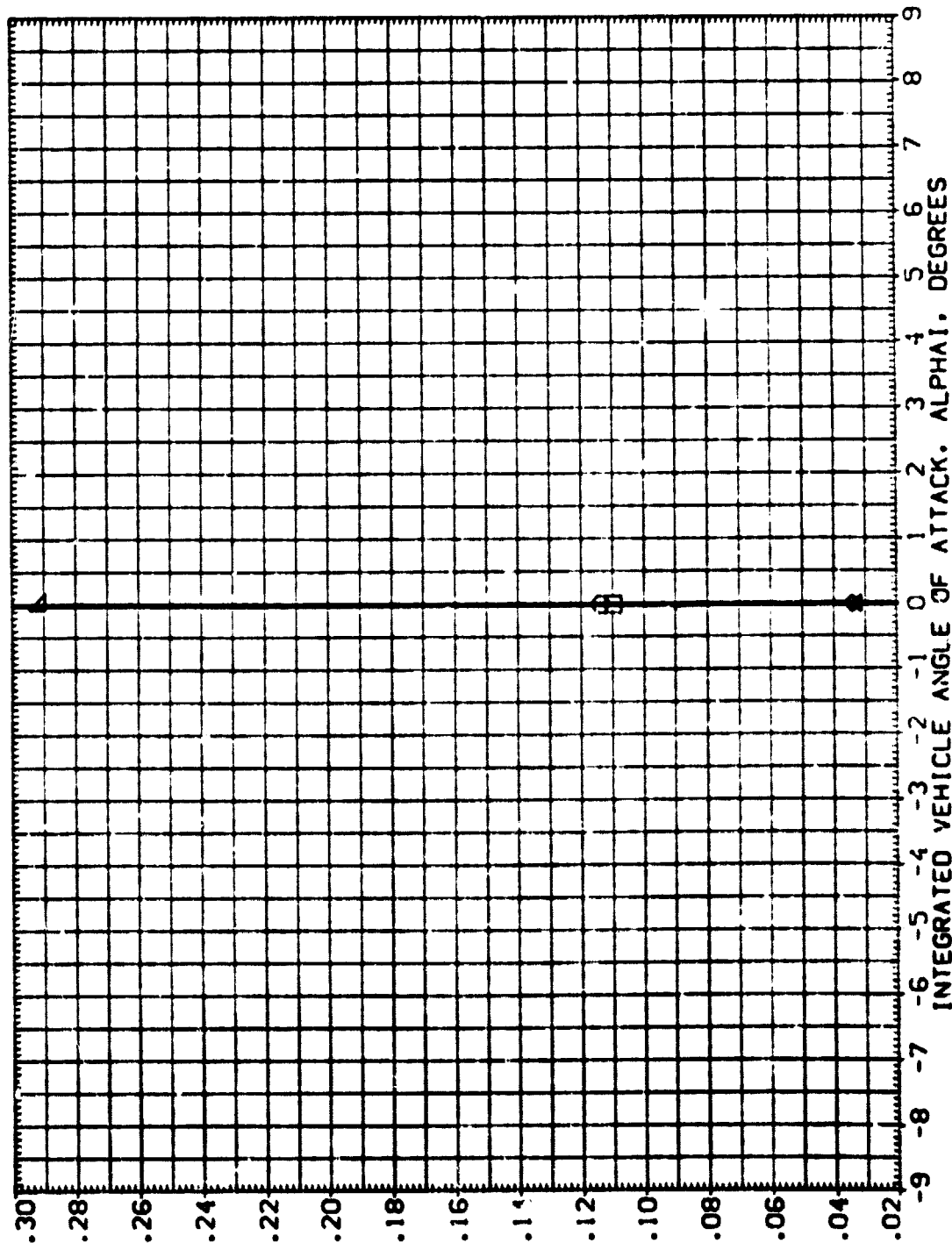


FIG. 6 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS. M=1.55 DEV=8/0

(C)BET.1 = -2.00

FOREBODY AXIAL FORCE COEFFICIENT, C_{AF}

DATA SET SYMBOL
(NET043)
(NET143)
(NET243)
(NET343)
(NET443)

CONFIGURATION DESCRIPTION
AME587-019(IAB1) LVAP ORBITER-ALL M_L SEALED
AME587-019(IAB1) LVAP TANK - ALL M_L SEALED
AME587-019(IAB1) LVAP -SRB - ALL M_L SEALED
AME587-019(IAB1) LVAP R-LRB ALL M_L SEALED
AME587-019(IAB1) LVAP INT VEH ALL M_L SEALED

ELV-18 ELV-08 MACH SPOBRK REFERENCE INFORMATION SQ.FT.
8.000 .000 1.550 .000 2690.0000 IN.
8.000 .000 1.350 .000 1297.0000 IN.
8.000 .000 1.550 .000 1297.0000 IN.
8.000 .000 1.550 .000 976.0000 IN.
8.000 .000 1.550 .000 400.0000 IN.
8.000 .000 1.550 .000 400.0000 IN.
SCALE .0300

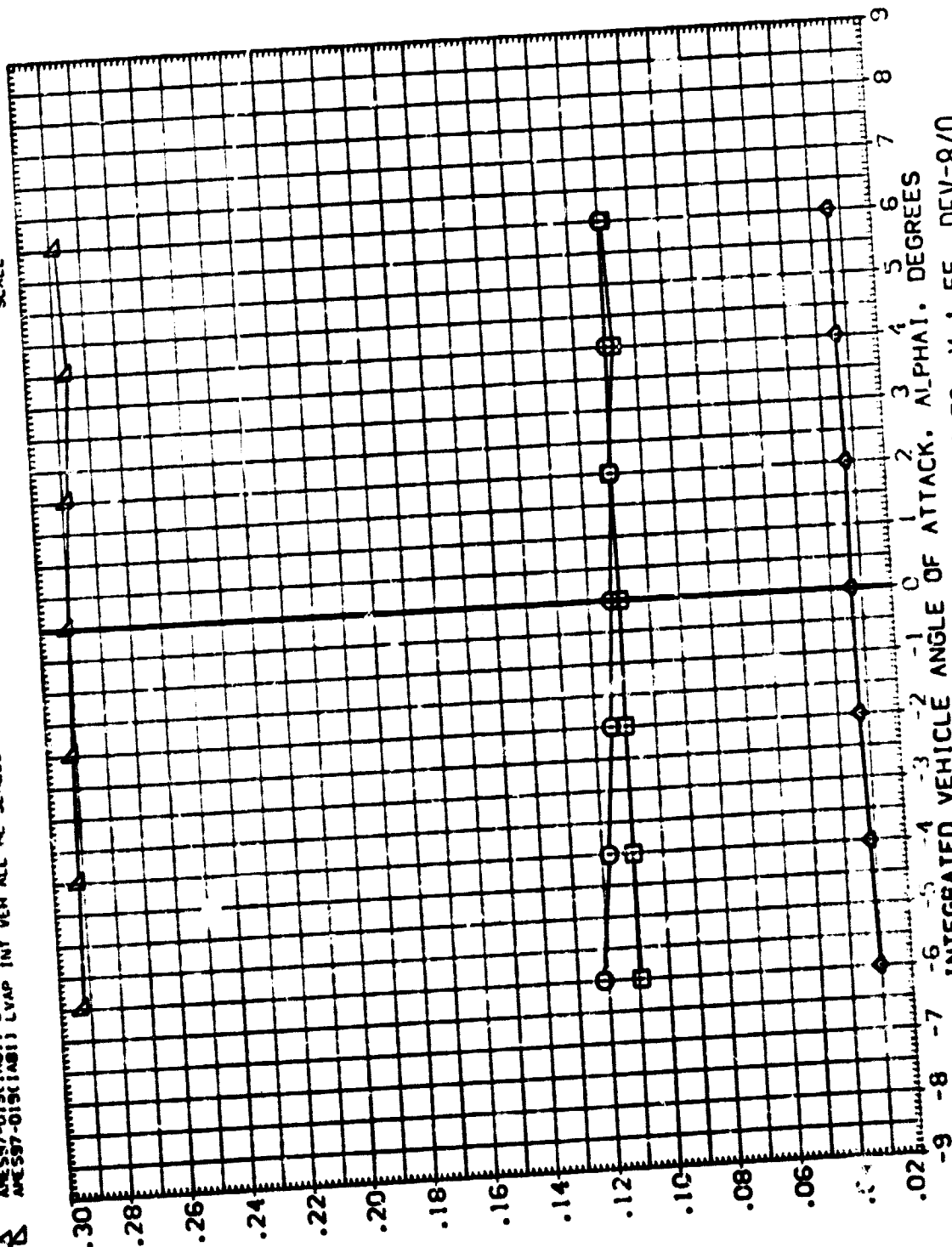


FIG. 6 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS. M=1.55 DEV=8/0

(0)BET 1 = .00

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION			
(MET043)	□	AMES97-0191(A81) LVAP ORBITER-ALL HL SEALED	8.000	.000	1.550	.000	SREF	2690.0000	SD.FT.	
(MET143)	□	AMES97-0191(A81) LVAP TANK - ALL HL SEALED	8.000	.000	1.550	.000	LREF	1297.0000	IN.	
(MET143)	□	AMES97-0191(A81) LVAP L-SRB - ALL HL SEALED	8.000	.000	1.550	.000	BRIF	1297.0000	IN.	XT
(MET143)	□	AMES97-0191(A81) LVAP R-LRB - ALL HL SEALED	8.000	.000	1.550	.000	XMRP	976.0000	IN.	YT
(MET143)	□	AMES97-0191(A81) LVAP INT VEH ALL HL SEALED	8.000	.000	1.550	.000	ZMRP	400.0000	IN.	ZT
							SCALE			.0300

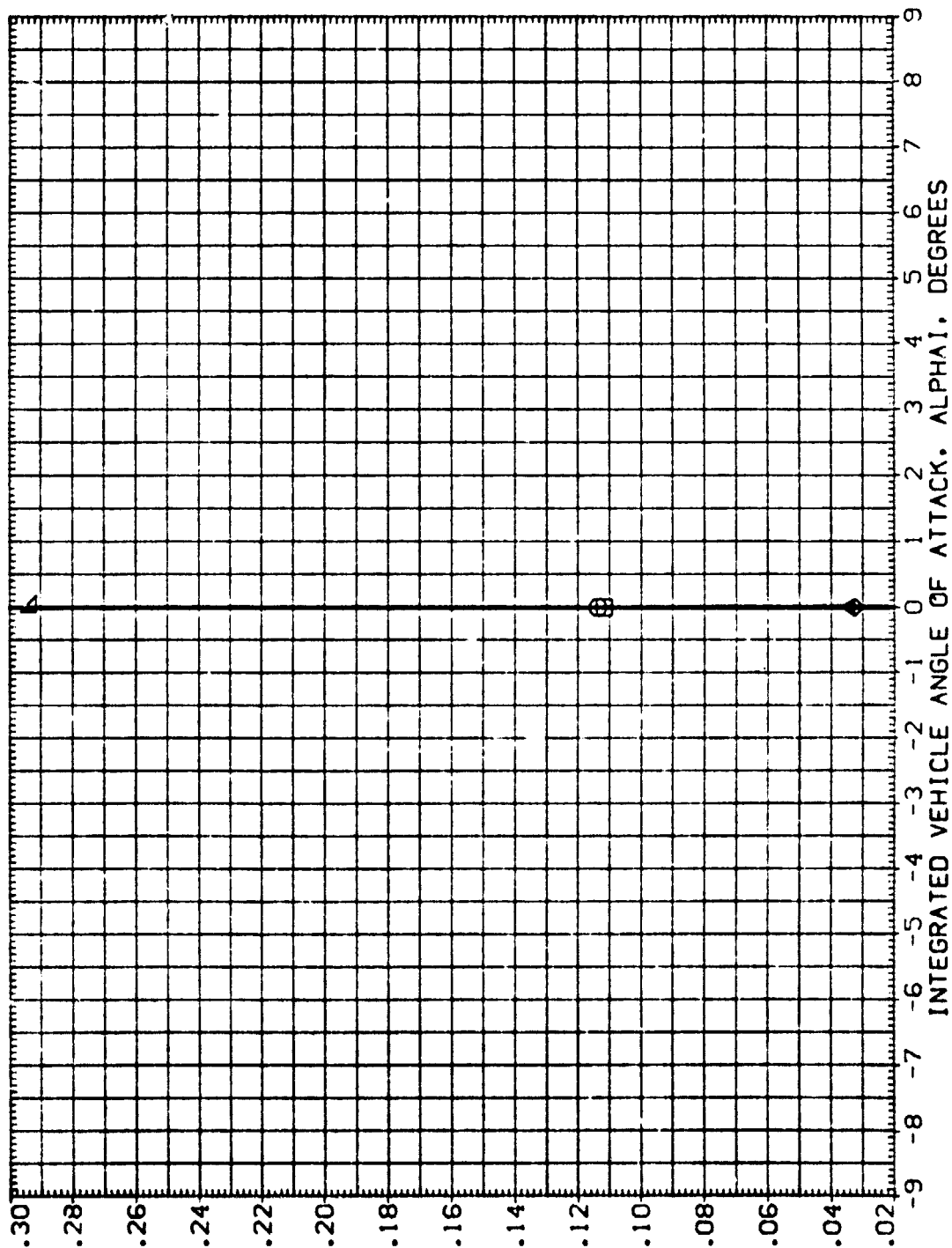


FIG. 6 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0

(E)BET.1 = 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRBK	REFERENCE INFORMATION
(MET1043)	AVES97-019(IAB1) LVAP ORBITER-ALL ML SEALED	8.000	.000	1.550	.000	SREF 2690.0000 SO.FT.
(MET1143)	AVES97-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(MET143)	AVES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN. XT
(MET143)	AVES97-019(IAB1) LVAP R-LRB - ALL ML SEALED	8.000	.000	1.550	.000	YMRP 976.0000 IN. YT
(MET143)	AVES97-019(IAB1) LVAP INT VEH ALL ML SEALED	8.000	.000	1.550	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

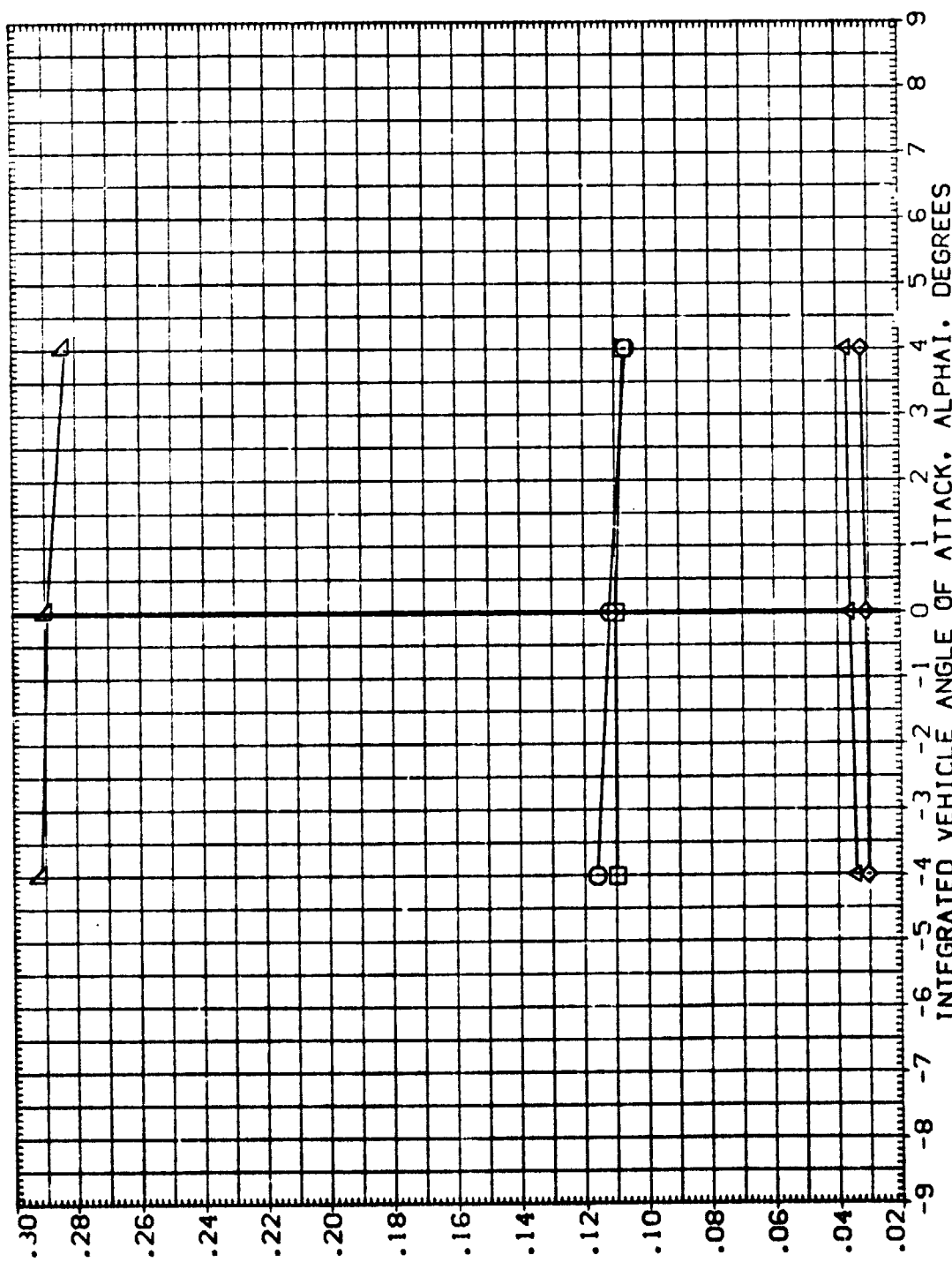


FIG. 6 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0
(FBETA) = 4.00 PAGE 54

FOREBODY AXIAL FORCE COEFFICIENT, C_{AF}

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(MET043)	AMES97-019(1A81) LVAP ORBITTER-ALL HL SEALED	8.000	.000	1.550	.000	SREF 2690.0000 SQ. FT.
(MET143)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(MET143)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	8.000	.000	1.550	.000	BREF 976.0000 IN. XT
(MET143)	AMES97-019(1A81) LVAP R-LRB ALL HL SEALED	8.000	.000	1.550	.000	YMRP .0000 IN. YT
(MET143)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	.000	1.550	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

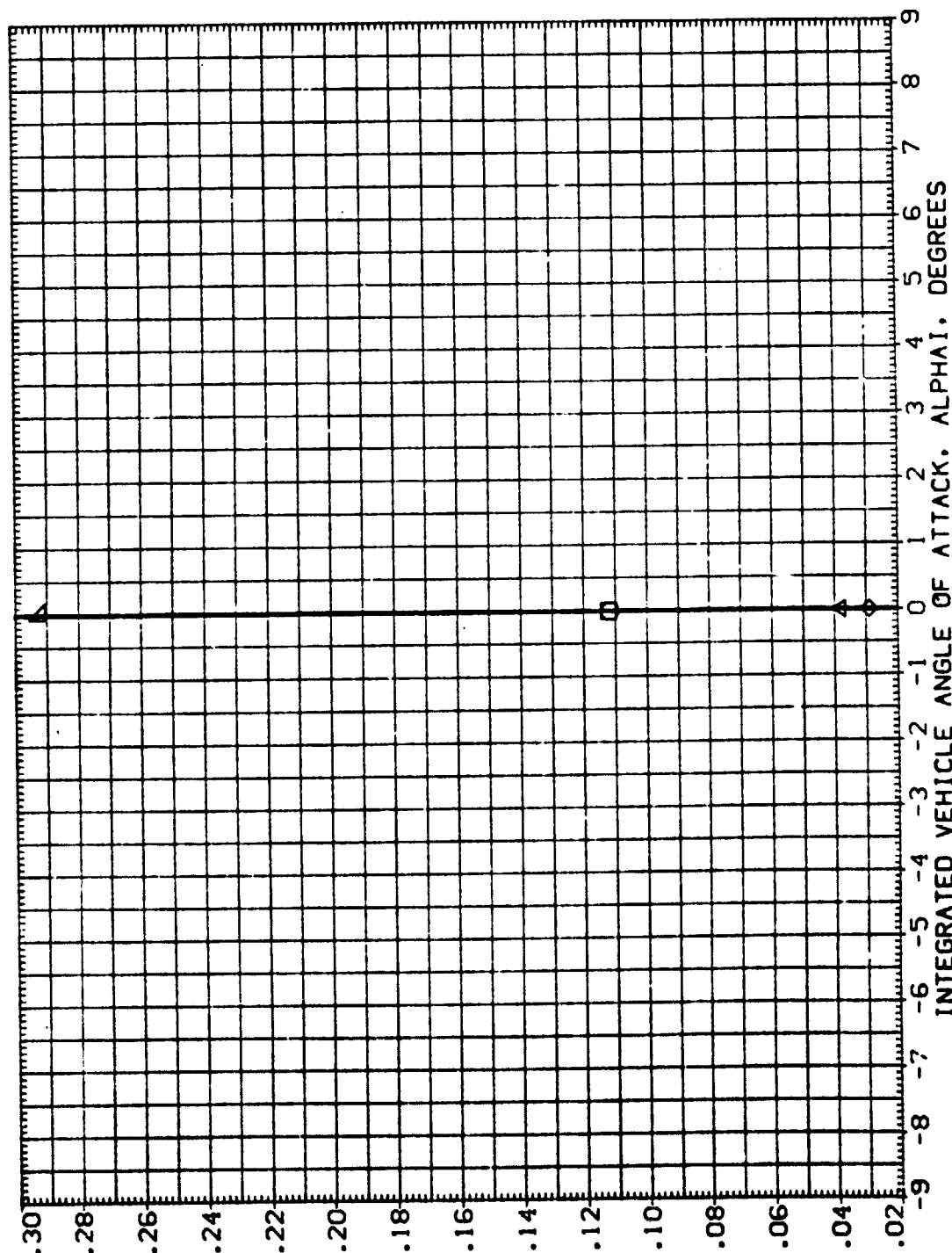


FIG. 6 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0

(G)BET.1 = 6.00

FOREBODY NORMAL FORCE COEFFICIENT, CNF

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(MET043)	ORBITER-ALL HL SEALED	8.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(MET143)	TANK - ALL HL SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(MET143)	L-SRB - ALL HL SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN.
(MET143)	R-LRB - ALL HL SEALED	8.000	.000	1.550	.000	XMRP 976.0000 IN.
(MET143)	LVAP INT VEH ALL HL SEALED	8.000	.000	1.550	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

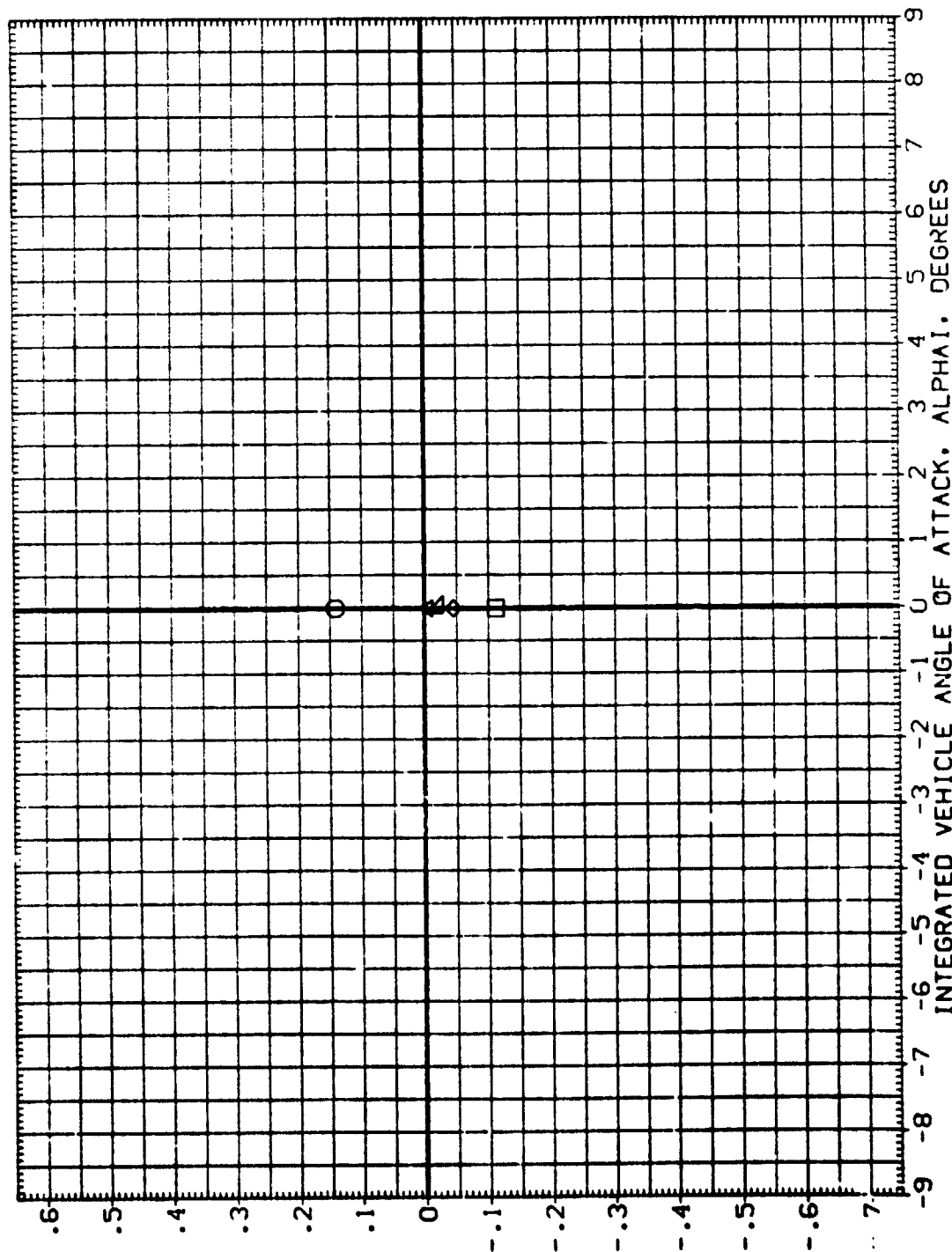


FIG. 6 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0

(ALPHA) = -6.00

DATA SET SYMBOL
 (MET143)
 (MET143)
 (MET143)
 (MET143)
 (MET143)

CONFIGURATION DESCRIPTION
 AMES97-019(IAB1) LVAP ORBITTER-ALL HL SEALED
 AMES97-019(IAB1) LVAP TANK - ALL HL SEALED
 AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED
 AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED
 AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED

ELV-1B ELV-0B MACH SPOBRK
 8.000 .000 1.550 .000
 8.000 .000 1.550 .000
 8.000 .000 1.550 .000
 8.000 .000 1.550 .000
 8.000 .000 1.550 .000

REFERENCE INFORMATION
 SREF 2690.0000 SO.FT.
 LREF 1297.0000 IN.
 BREF 1297.0000 IN.
 XHRP 976.0000 IN.
 YHRP .0000 IN.
 ZHRP 400.0000 IN.
 SCALE .0300

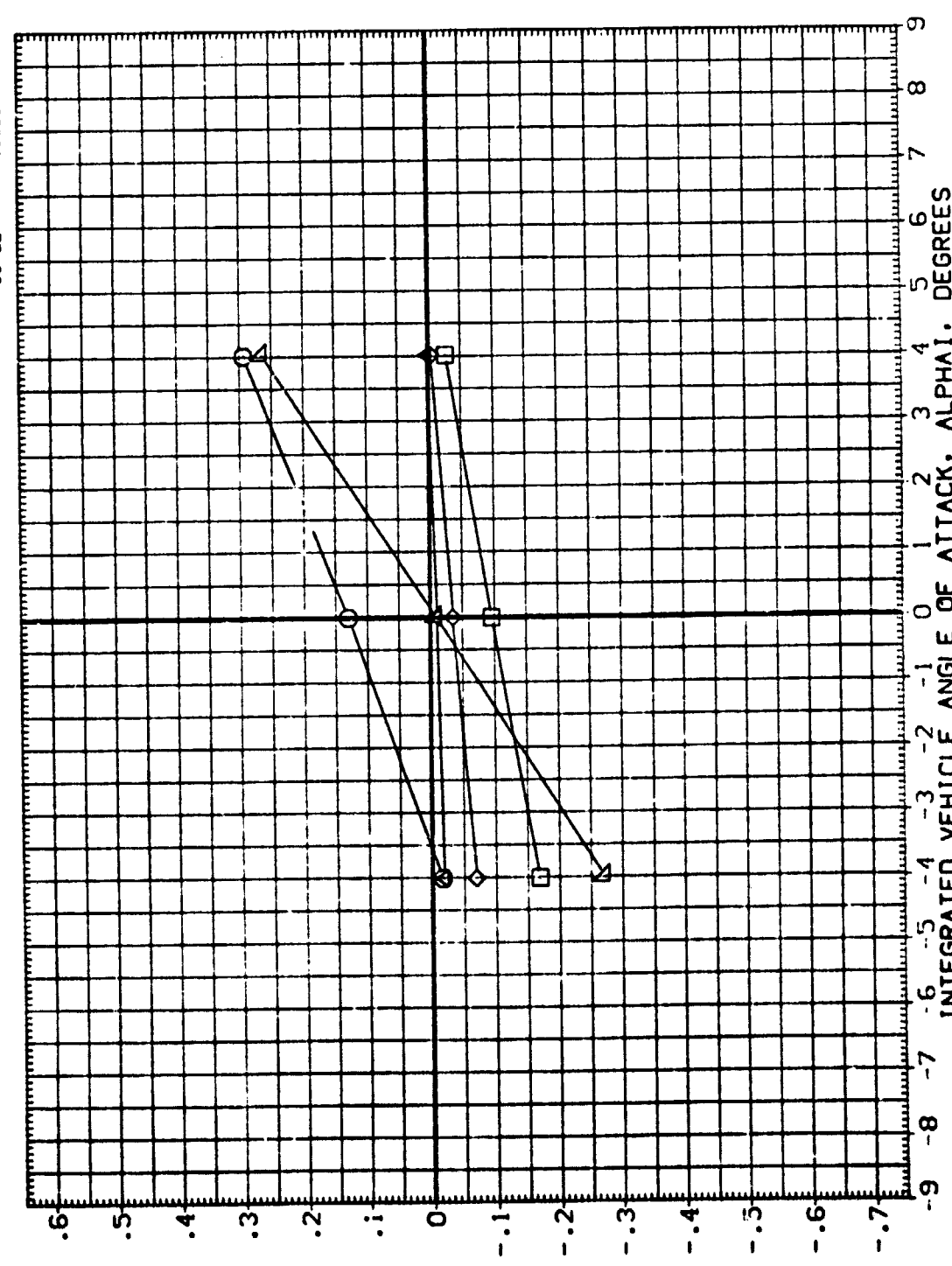


FIG. 6 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0

(B)BETA1 = -4.00

FOREBODY NORMAL FORCE COEFFICIENT, CNF

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(MET043)	AMES97-019(1A81) LVAP	8.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(MET143)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(MET143)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN.
(MET143)	AMES97-019(1A81) LVAP R-LRB - ALL HL SEALED	8.000	.000	1.550	.000	XMRP 976.0000 IN. XT
(MET143)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	.000	1.550	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

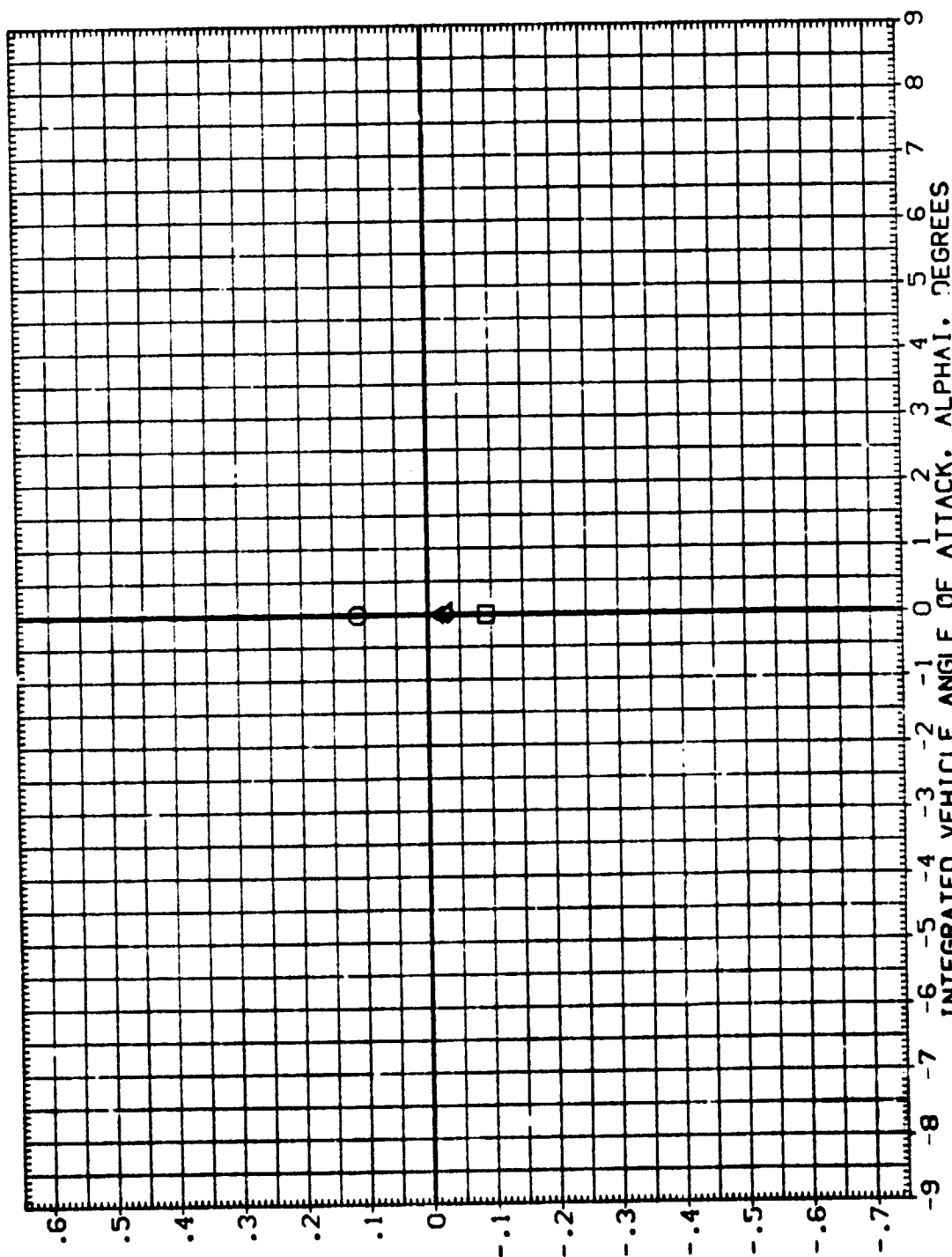
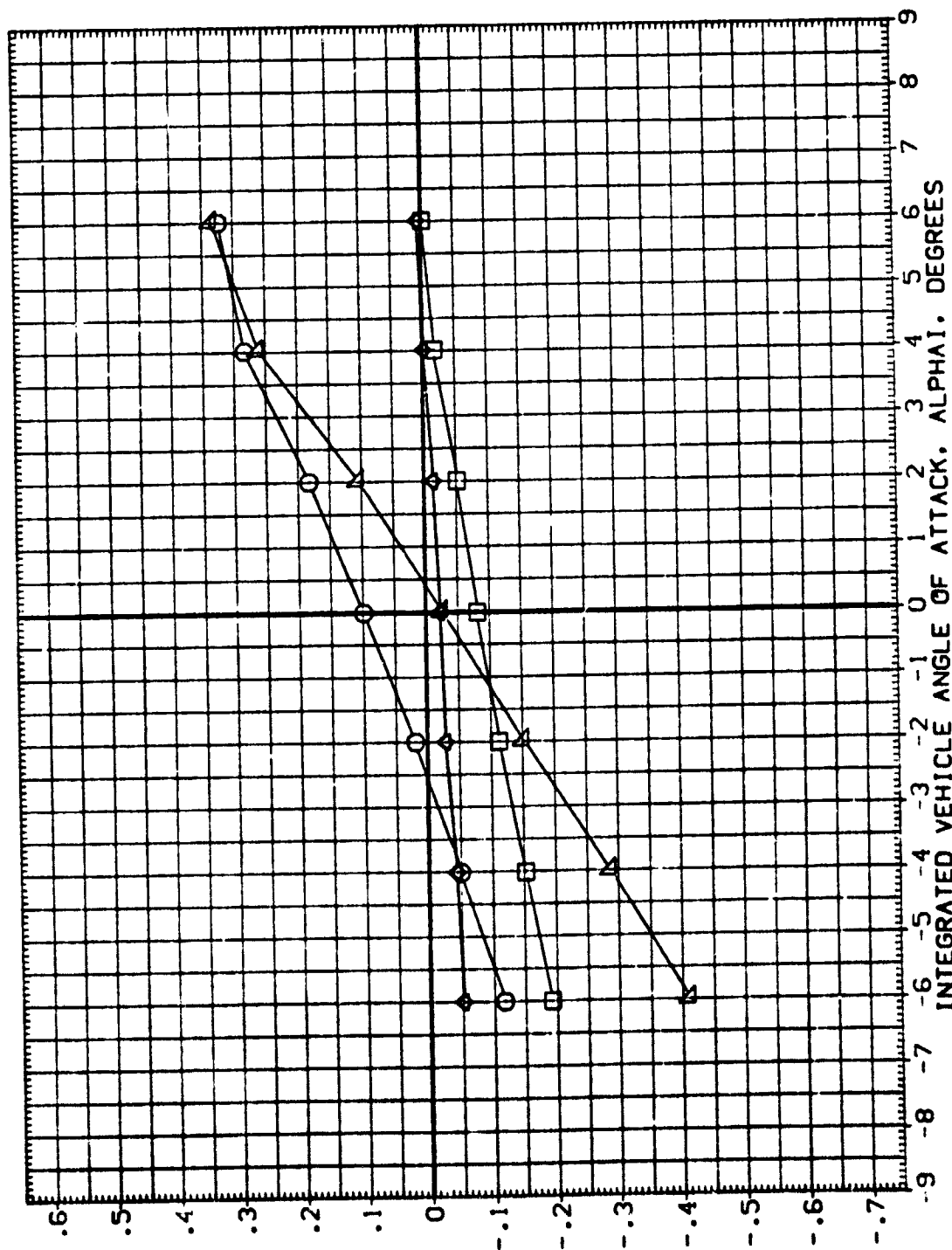


FIG. 6 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0
(C)BET.1 = -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-13	ELV-08	MACH	SPDBRK	REFERENCE INFORMATION
(MET043)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(MET143)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(MET143)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN. XT
(MET143)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	.000	1.550	.000	XMRP 976.0000 IN. YT
(MET143)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	1.550	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300



FOREBODY NORMAL FORCE COEFFICIENT, CNF

FIG. 6 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0

(O)BETA.I = .00

FOREBODY NORMAL FORCE COEFFICIENT, CNF

DATA SET SYMBOL
(MET043)
(MET143)
(MET143)
(MET143)

CONFIGURATION DESCRIPTION
AMES97-019(IAB1) LVAP ORBITTER-ALL HL SEALED
AMES97-019(IAB1) LVAP TANK - ALL HL SEALED
AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED
AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED
AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED

ELV-TB ELV-OB MACH SPDBRK REFERENCE INFORMATION
8.000 .000 1.550 .000 SREF 2690.0000 SQ.FT.
8.000 .000 1.550 .000 LREF 1297.0000 IN.
8.000 .000 1.550 .000 BREF 1297.0000 IN.
8.000 .000 1.550 .000 XMRP 976.0000 IN. XT
8.000 .000 1.550 .000 YMRP 400.0000 IN. YT
8.000 .000 1.550 .000 ZMRP 400.0000 IN. ZT
SCALE .0300

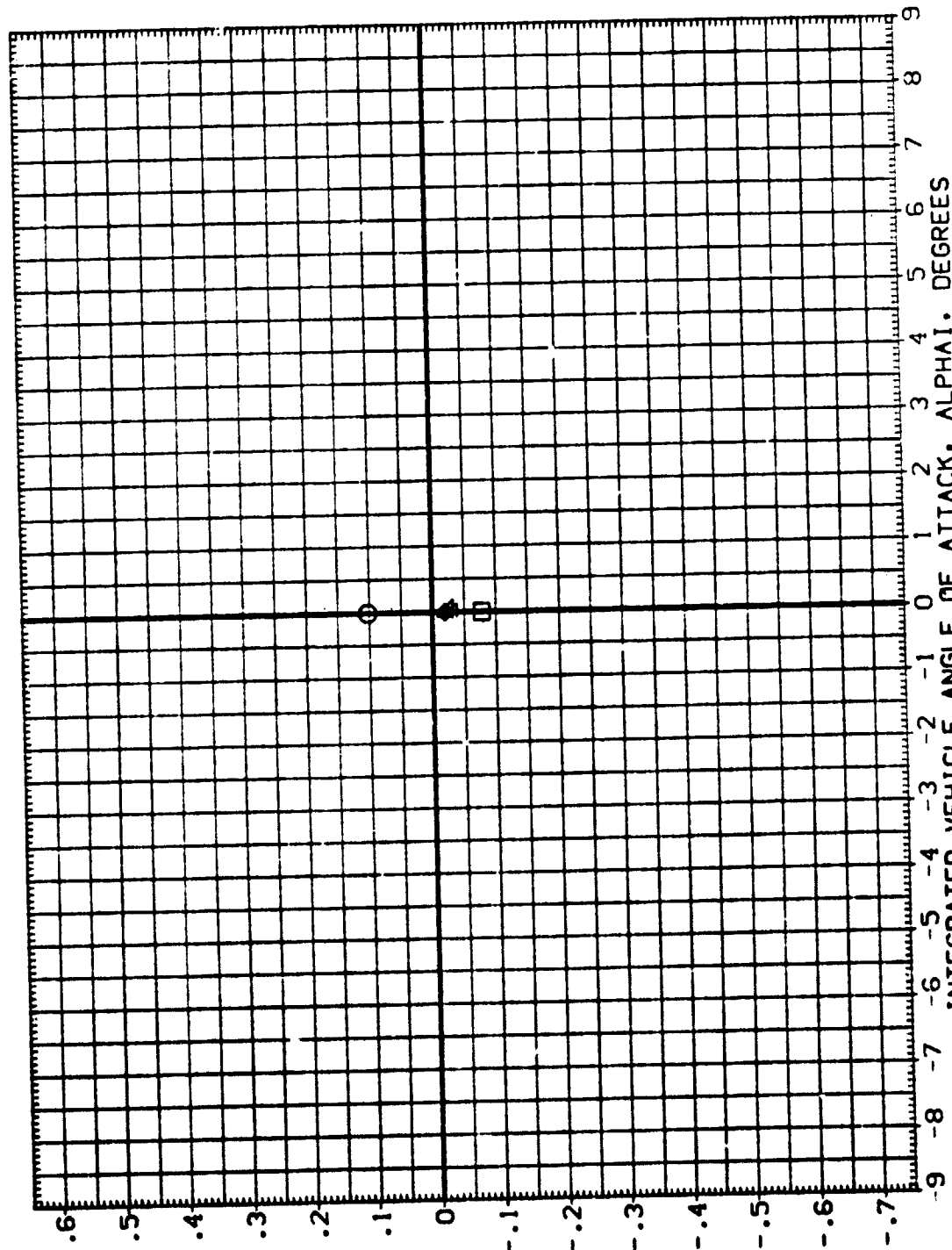
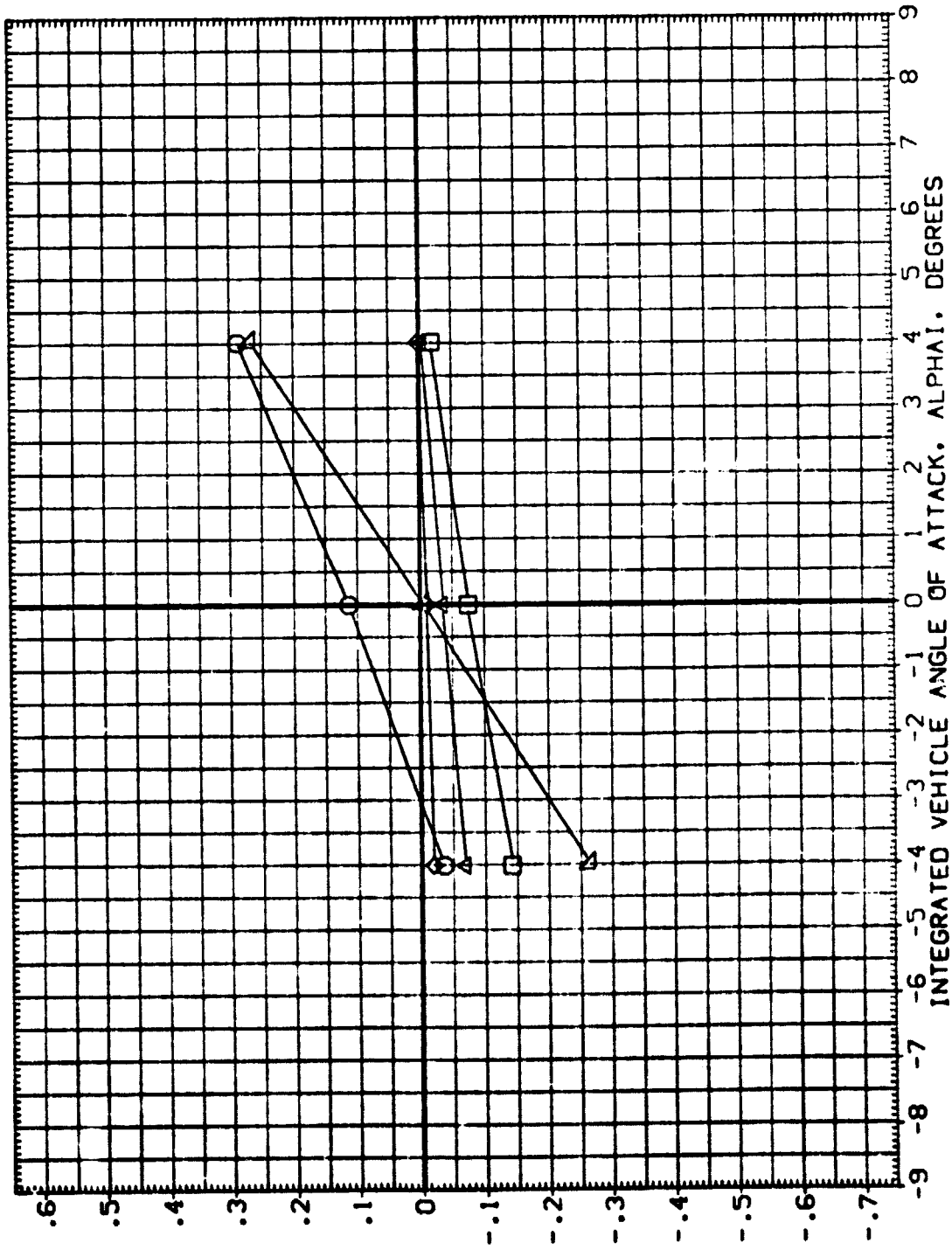


FIG. 6 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0

(E)BET.1 = 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(NET043)	AVES97-019(1A81) LVAP ORBITTER-ALL M _L SEALED	8.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(NET143)	AVES97-019(1A81) LVAP TANK - ALL M _L SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(NETL43)	AVES97-019(1A81) LVAP L-SRB - ALL M _L SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN.
(NETR43)	AVES97-019(1A81) LVAP R-LRB - ALL M _L SEALED	8.000	.000	1.550	.000	XPRP 976.0000 IN.
(NET143)	AVES97-019(1A81) LVAP INT VEN ALL M _L SEALED	8.000	.000	1.550	.000	ZMRP 400.0000 IN.
						SCALE .0300



FOREBODY NORMAL FORCE COEFFICIENT, CNF

FIG. 6 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0

FOREBODY NORMAL FORCE COEFFICIENT, CNF

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPOBRK	REFERENCE INFORMATION
(NET043)	AVES97-019(IAB1) LVAP	8.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(NET143)	AVES97-019(IAB1) LVAP	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(NETL43)	AVES97-019(IAB1) LVAP	8.000	.000	1.550	.000	BREF 1297.0000 IN.
(NETR43)	AVES97-019(IAB1) LVAP	8.000	.000	1.550	.000	XMRP 976.0000 IN. XT
(NETI43)	AVES97-019(IAB1) LVAP	8.000	.000	1.550	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

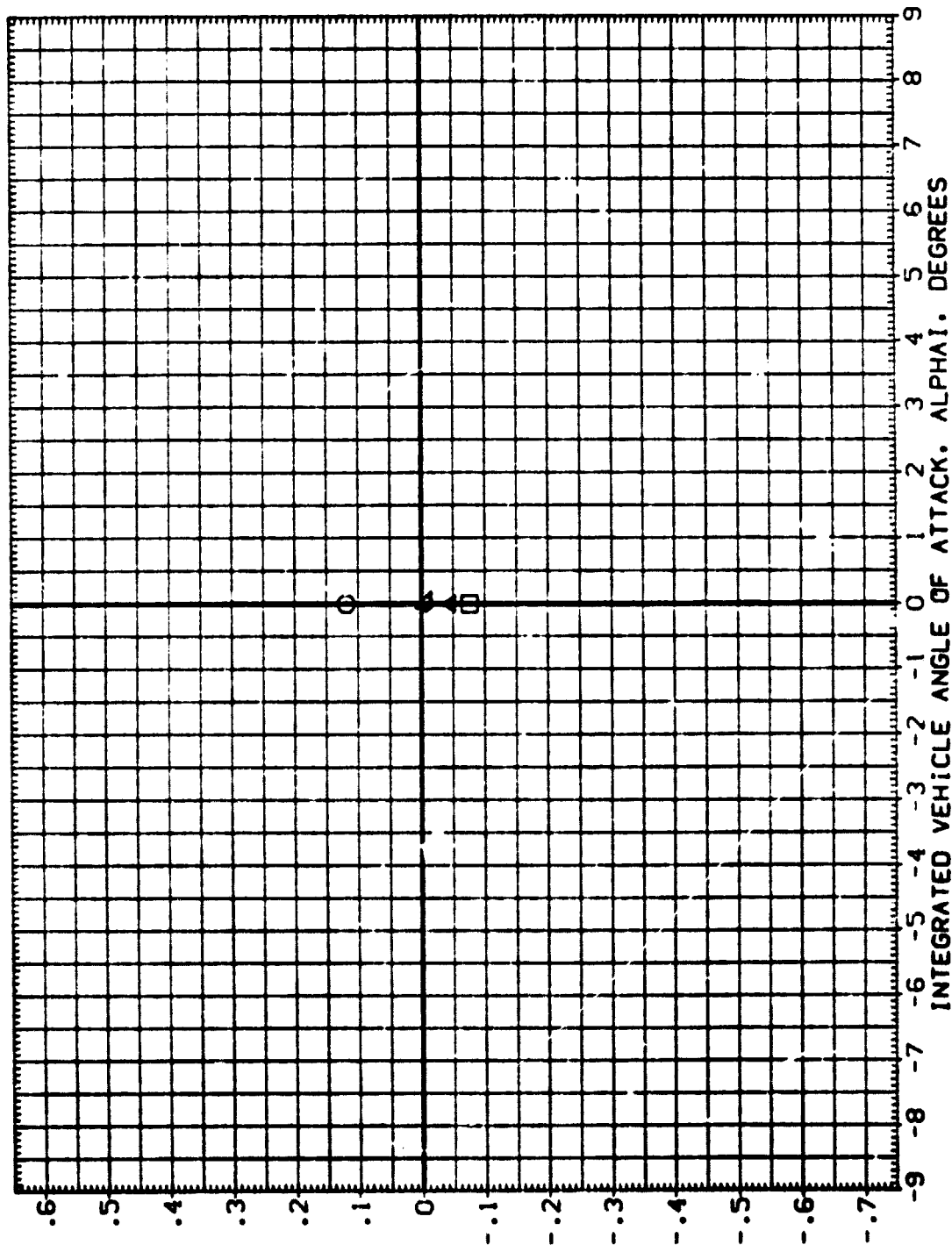


FIG. 6 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0

(G)BET.1 = 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(MET043)	AMES97-019(TAB1) LVAP CRBITER-ALL M SEALED	8.000	.000	1.350	.000	SREF 2690.0000 SQ.FT.
(MET143)	AMES97-019(TAB1) LVAP TANK - ALL M SEALED	8.000	.000	1.350	.000	LREF 1297.0000 IN.
(MET143)	AMES97-019(TAB1) LVAP L-SRB - ALL M SEALED	8.000	.000	1.350	.000	BREF 1297.0000 IN.
(MET143)	AMES97-019(TAB1) LVAP R-LPB - ALL M SEALED	8.000	.000	1.350	.000	YMRP 976.0000 IN. XT
(MET143)	AMES97-019(TAB1) LVAP INT VEH ALL M SEALED	8.000	.000	1.350	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

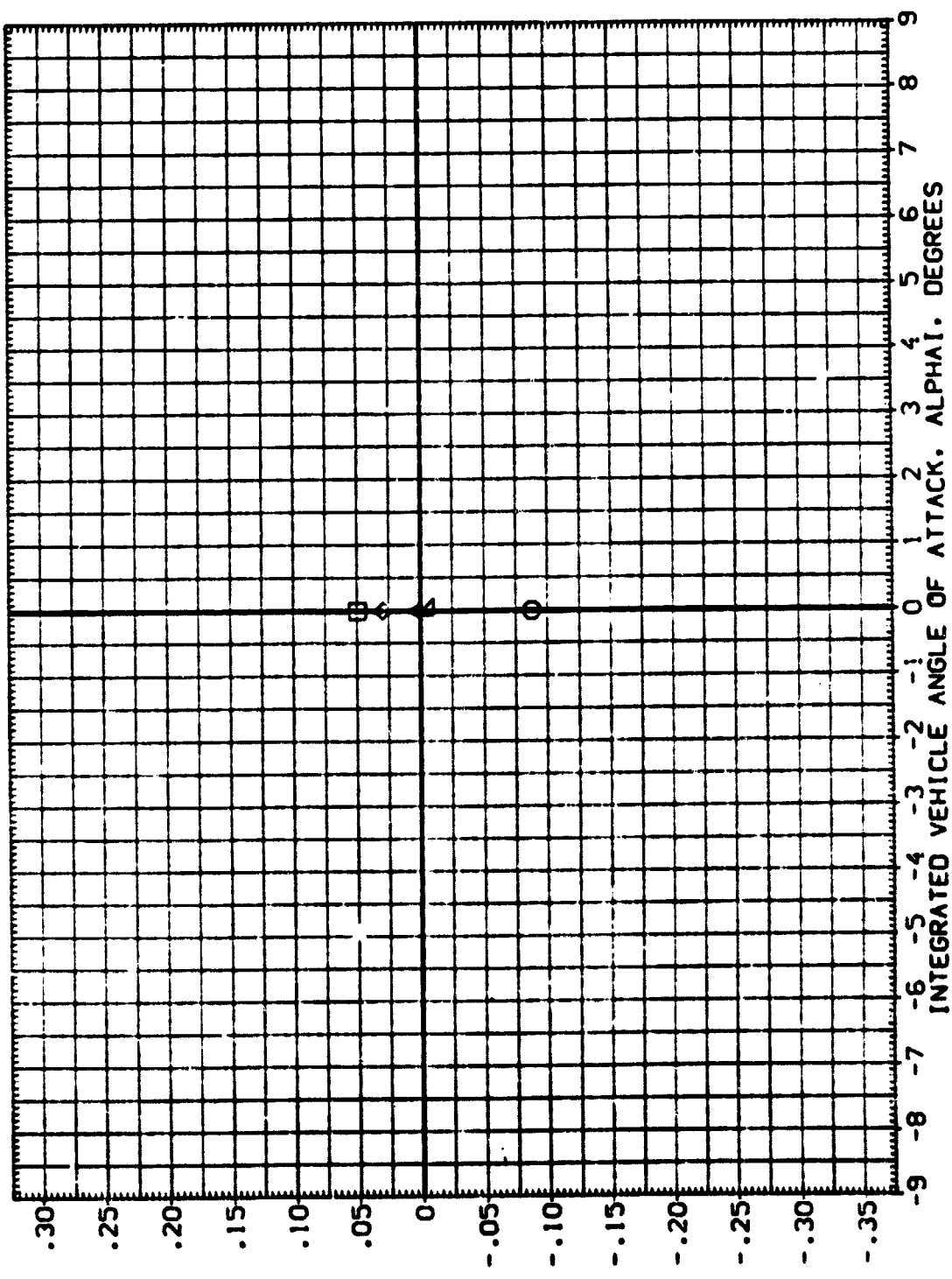


FIG. 6 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0

(A) BET. 1 = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(MET043)	AMES57-019(IAB1) LVAP CRB11TER-ALL M SEALED	8.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(MET143)	AMES57-019(IAB1) LVAP TANK - ALL M SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(MET143)	AMES57-019(IAB1) LVAP L-SRB - ALL M SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN.
(MET143)	AMES57-019(IAB1) LVAP R-LRB ALL M SEALED	8.000	.000	1.550	.000	XMRP 976.0000 IN. XT
(MET143)	AMES57-019(IAB1) LVAP INT VEH ALL M SEALED	8.000	.000	1.550	.000	YMRP 400.0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

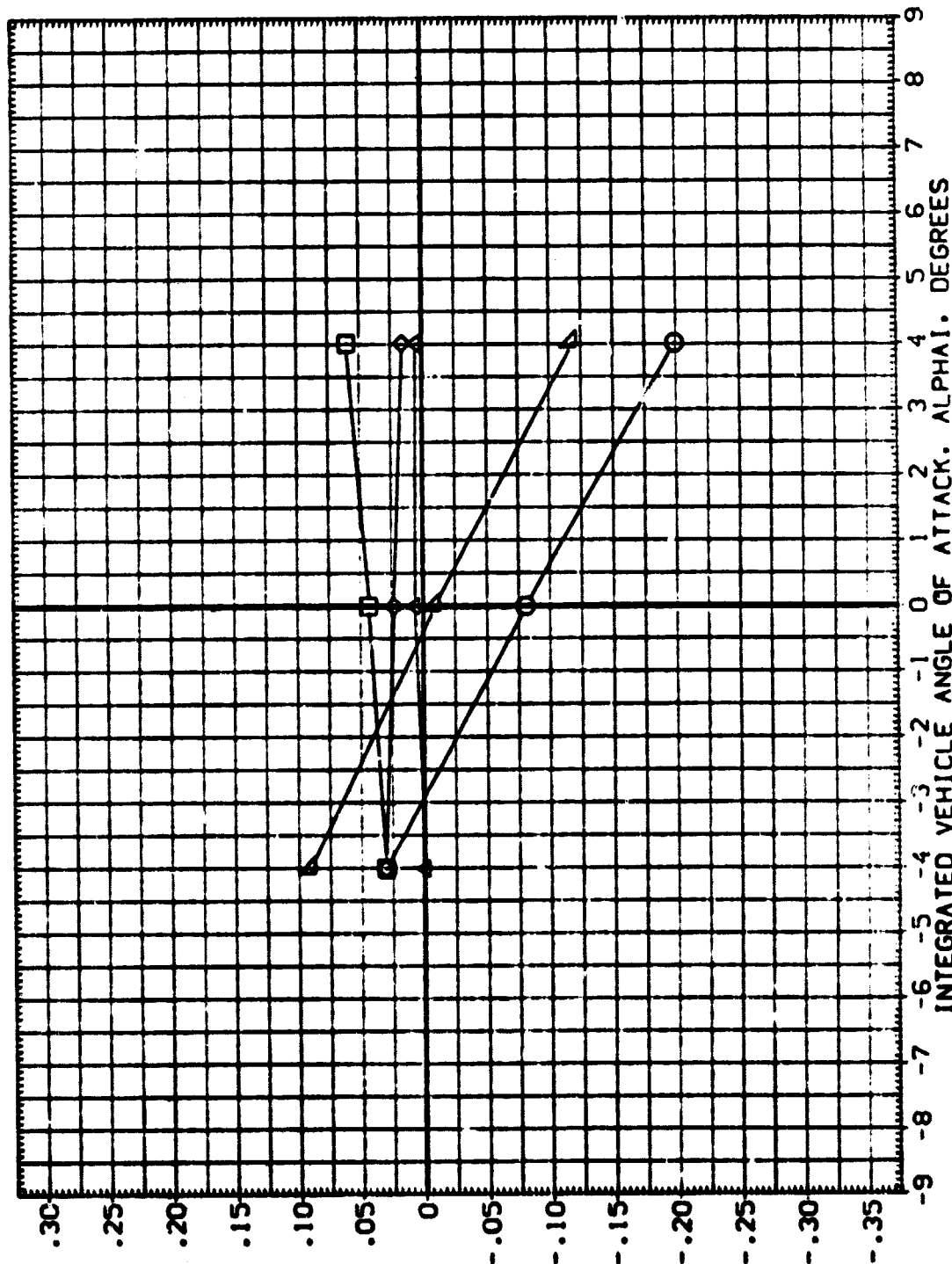


FIG. 6 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(MET013)	AMES97-019C (AB1) LVAP CRBITER-ALL HL SEALED	8.000	.000	1.550	.000	SREF 2690.0000 SO.FT.
(MET143)	AMES97-019C (AB1) LVAP TANK - ALL HL SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(MET143)	AMES97-019C (AB1) LVAP L-SPB - ALL HL SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN.
(MET143)	AMES97-019C (AB1) LVAP R-LRB - ALL HL SEALED	8.000	.000	1.550	.000	XHAP 976.0000 IN. XT
(MET143)	AMES97-019C (AB1) LVAP INT VEH - ALL HL SEALED	8.000	.000	1.550	.000	ZHAP 400.0000 IN. YT
						SCALE .0300

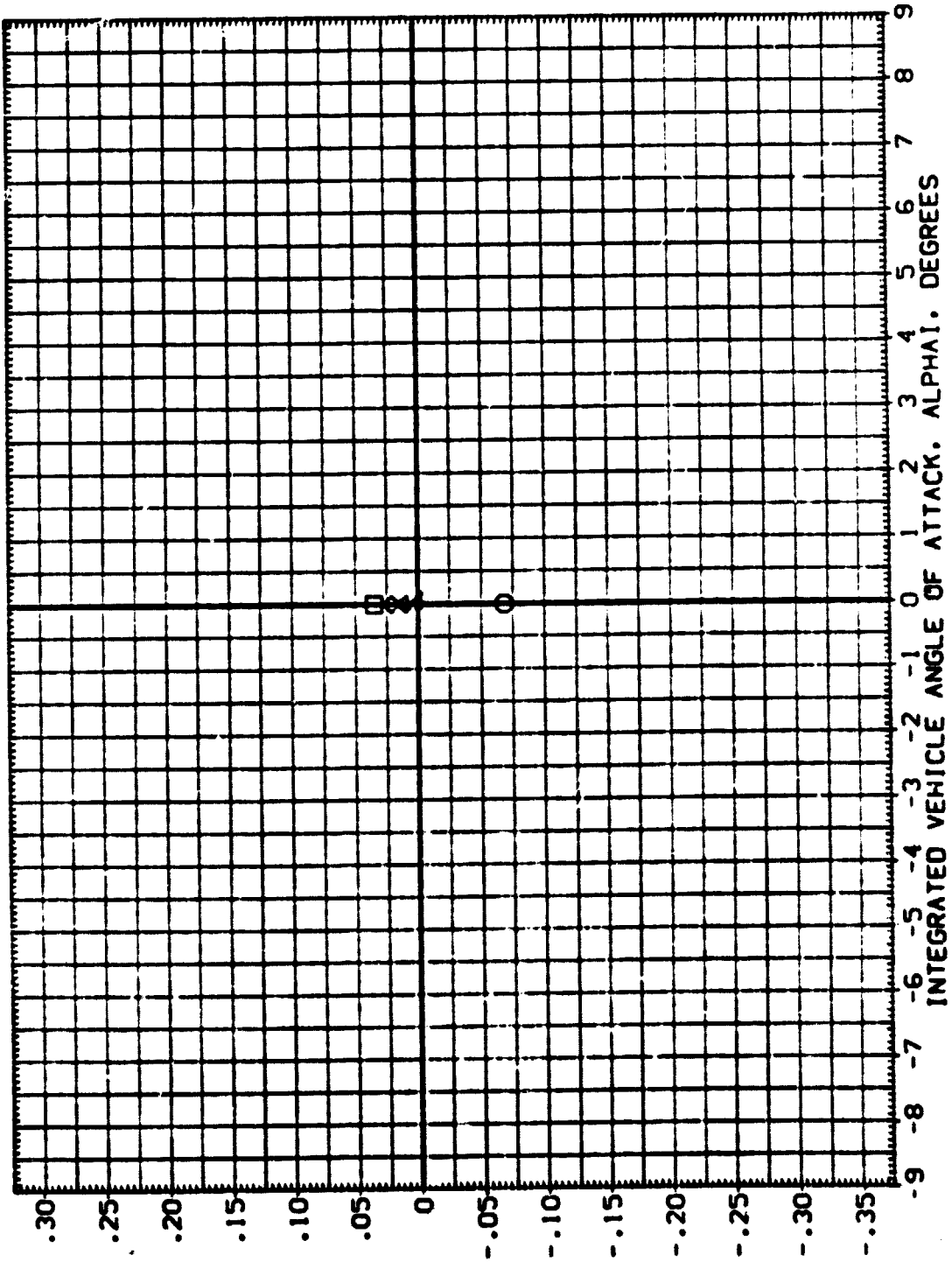


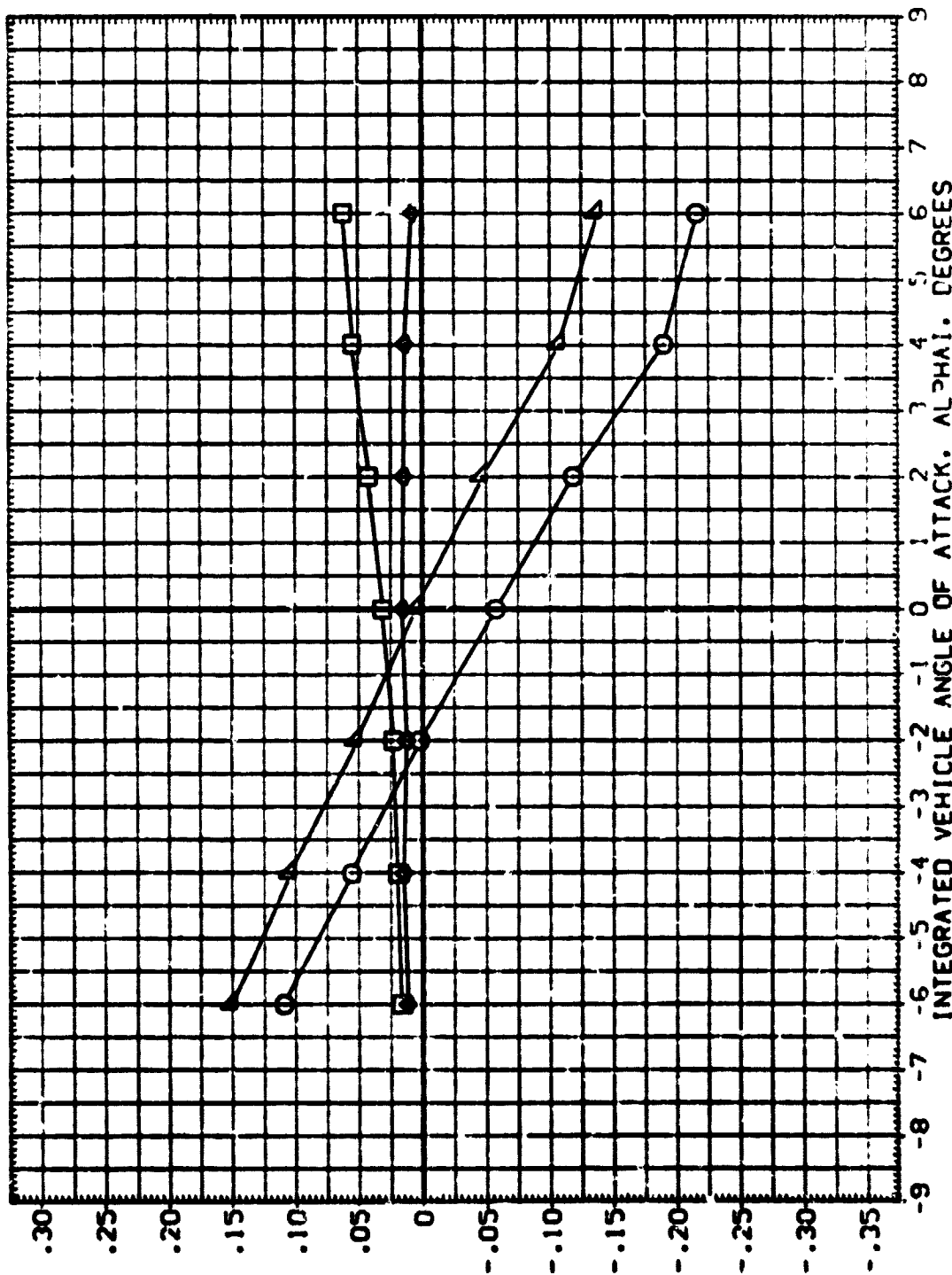
FIG. 6 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS. M=1.55 DEV=8/0

(C)BET.1 = -2.00

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(MET143) ARES37-015(1AB1) LVAP ORBITER-ALL ML SEALED
 (MET143) ARES37-015(1AB1) LVAP TANK - ALL ML SEALED
 (MET143) ARES37-015(1AB1) LVAP L-SRB - ALL ML SEALED
 (MET143) ARES37-015(1AB1) LVAP R-LRB ALL ML SEALED
 (MET143) ARES37-015(1AB1) LVAP INT VEN ALL ML SEALED

ELV-1B ELV-08 MACH SPOBRK REFERENCE INFORMATION
 0.000 .000 1.350 .000 SREF 2690.0000 SQ.FT.
 0.000 .000 1.350 .000 LREF 1297.0000 IN.
 0.000 .000 1.350 .000 BREF 1297.0000 IN.
 0.000 .000 1.350 .000 XMRP 976.0000 IN. XT
 0.000 .000 1.350 .000 YMRP 400.0000 IN. YT
 0.000 .000 1.350 .000 ZMRP 400.0000 IN. ZT
 SCALE .0300



FOREBODY PITCHING MOMENT COEFFICIENT, CMF

FIG. 6 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0

(D)8C 11 = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(ME1043)	AMES97-019(1A81) LVAP CRBITTER-ALL HL SEALED	8.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(ME1143)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(ME1243)	AMES97-019(1A81) LVAP L-SPB - ALL HL SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN.
(ME1343)	AMES97-019(1A81) LVAP R-LPB ALL HL SEALED	8.000	.000	1.550	.000	XREF 976.0000 IN. XT
(ME1443)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	.000	1.550	.000	YREF 400.0000 IN. YT
						ZREF 400.0000 IN. ZT
						SCALE .0300

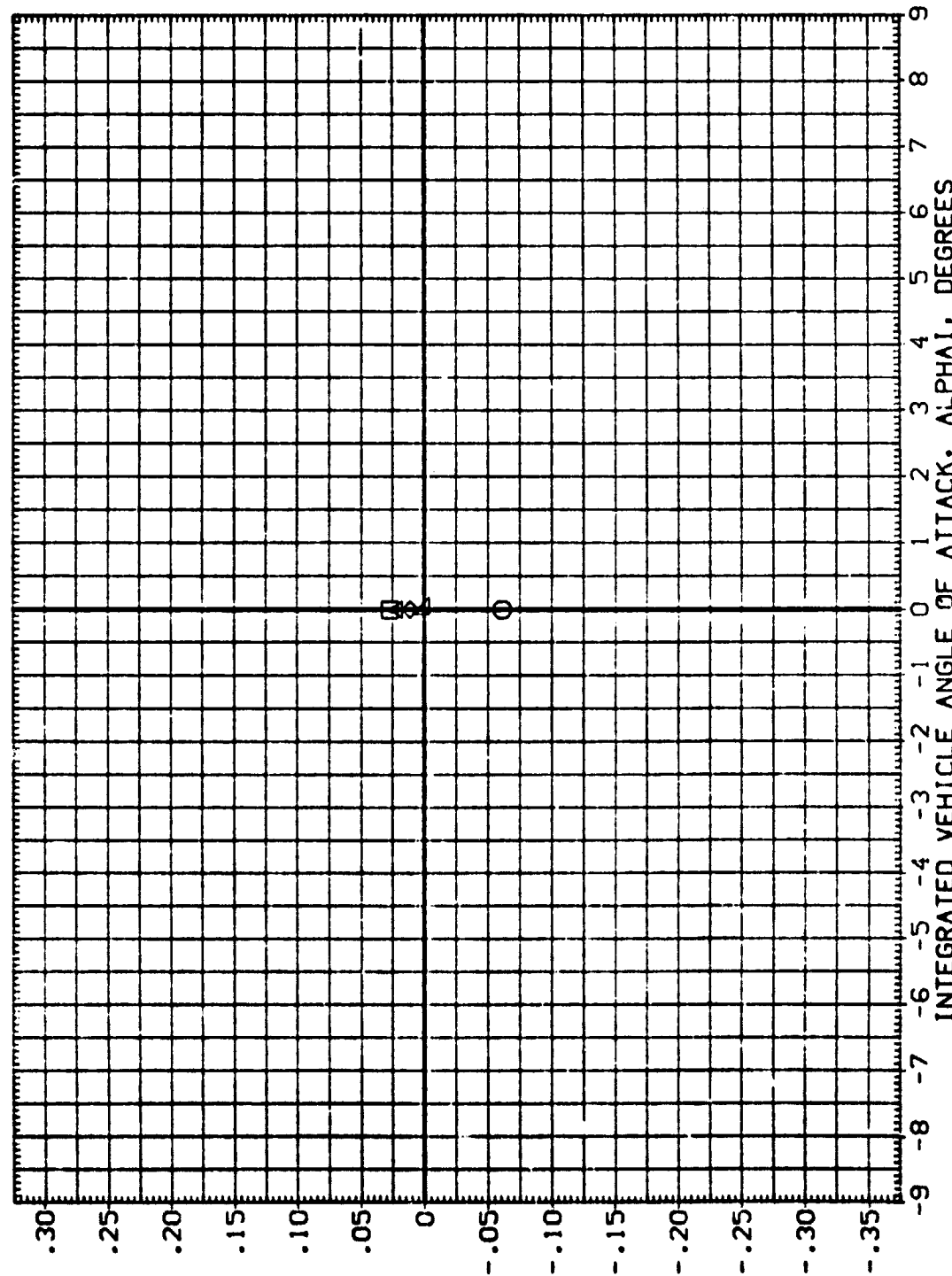


FIG. 6 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDRBK	REFERENCE INFORMATION
(HE1043)	AMES97-019(IAB1) LVAP CPB1TER-ALL ML SEALED	8.000	.000	1.550	.000	SREF 2830.0000 SQ.FT.
(HE1143)	AMES97-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(HE143)	AMES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN.
(HE1R43)	AMES97-019(IAB1) LVAP R-LPB ALL ML SEALED	8.000	.000	1.550	.000	XHRP 576.0000 IN.
(HE1143)	AMES97-019(IAB1) LVAP INT VEN ALL ML SEALED	8.000	.000	1.550	.000	YHRP 400.0000 IN.
						ZHRP 400.0000 IN.
						SCALE .0300

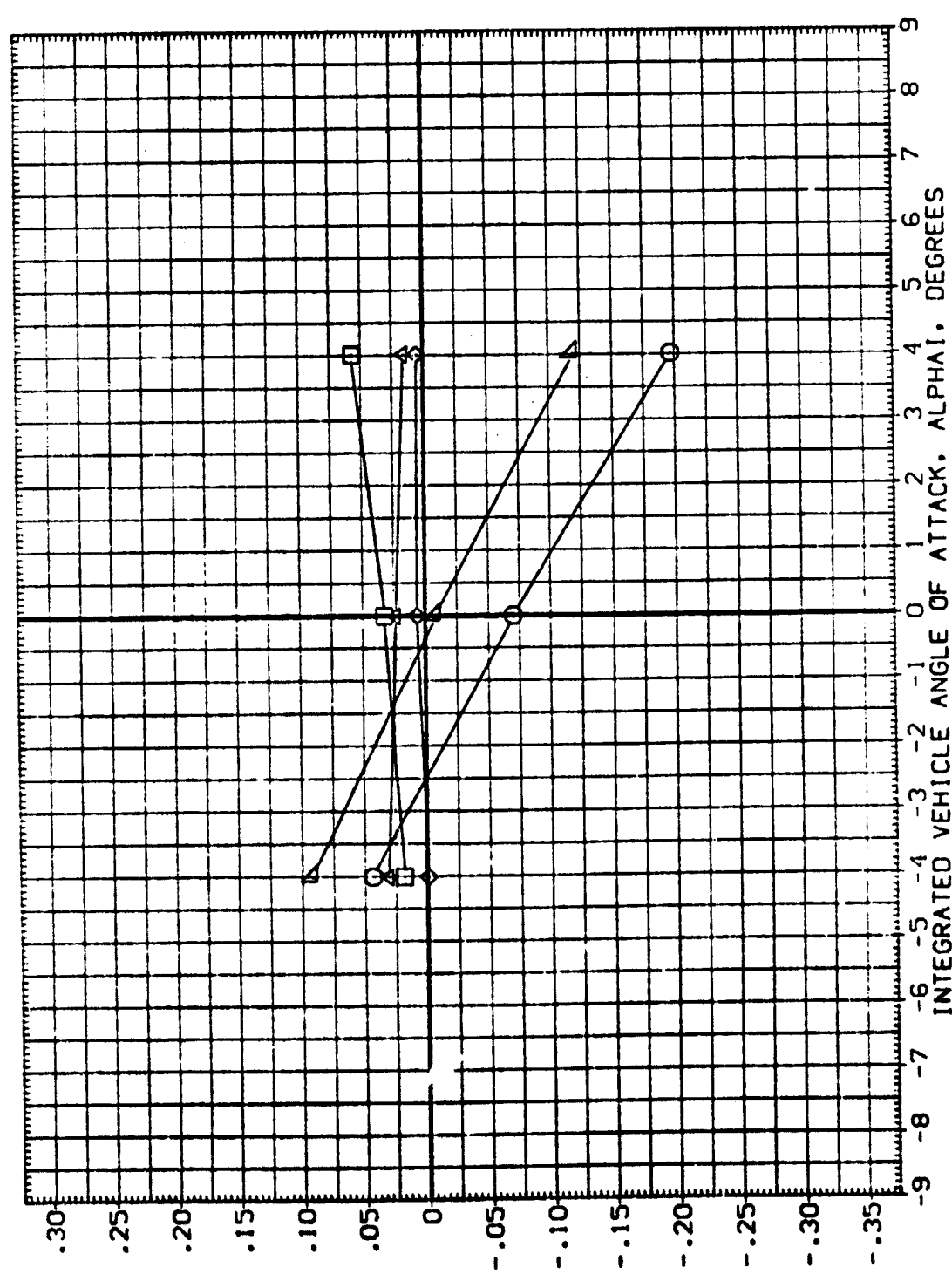
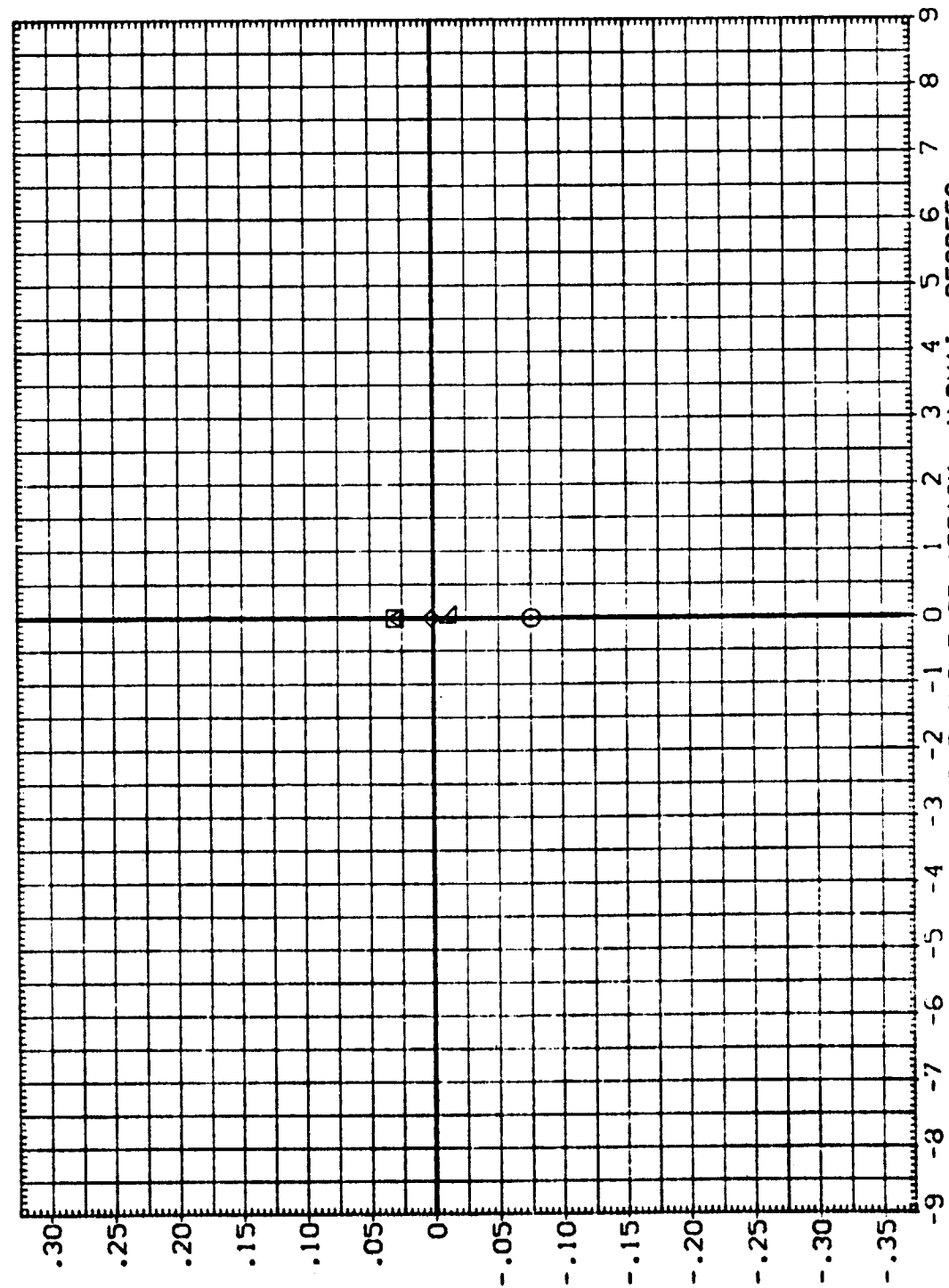


FIG. 6 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-OB	MACH	SPOBRK	REFERENCE INFORMATION
(MET043)	AMES97-019(IAB1) LVAP CRB1ER-ALL HL SEALED	8.000	.000	1.550	.000	SREF 2690.0000 SO.FT.
(MET143)	AMES97-019(IAB1) LVAP TAPK - ALL HL SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(MET143)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN.
(MET143)	AMES97-019(IAB1) LVAP R-LPB - ALL HL SEALED	8.000	.000	1.550	.000	XMRP 976.0000 IN. XT
(MET143)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	1.550	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300



FOREBODY PITCHING MOMENT COEFFICIENT, CLMP

FIG. 6 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPCBBK	REFERENCE INFORMATION
(MET043)	APES97-019C(1A81) LVAP ORBITER-ALL HL SEALED	8.000	.000	1.550	.000	SREF 2690.0000 SO.FT.
(MET143)	APES97-019C(1A81) LVAP TANK - ALL HL SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(MET143)	APES97-019C(1A81) LVAP L-SRB - ALL HL SEALED	8.000	.000	1.550	.000	BREF 976.0000 IN. XT
(MET143)	APES97-019C(1A81) LVAP R-LRB - ALL HL SEALED	8.000	.000	1.550	.000	YMRP 400.0000 IN. YT
(MET143)	APES97-019C(1A81) LVAP INT VEH ALL HL SEALED	8.000	.000	1.550	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

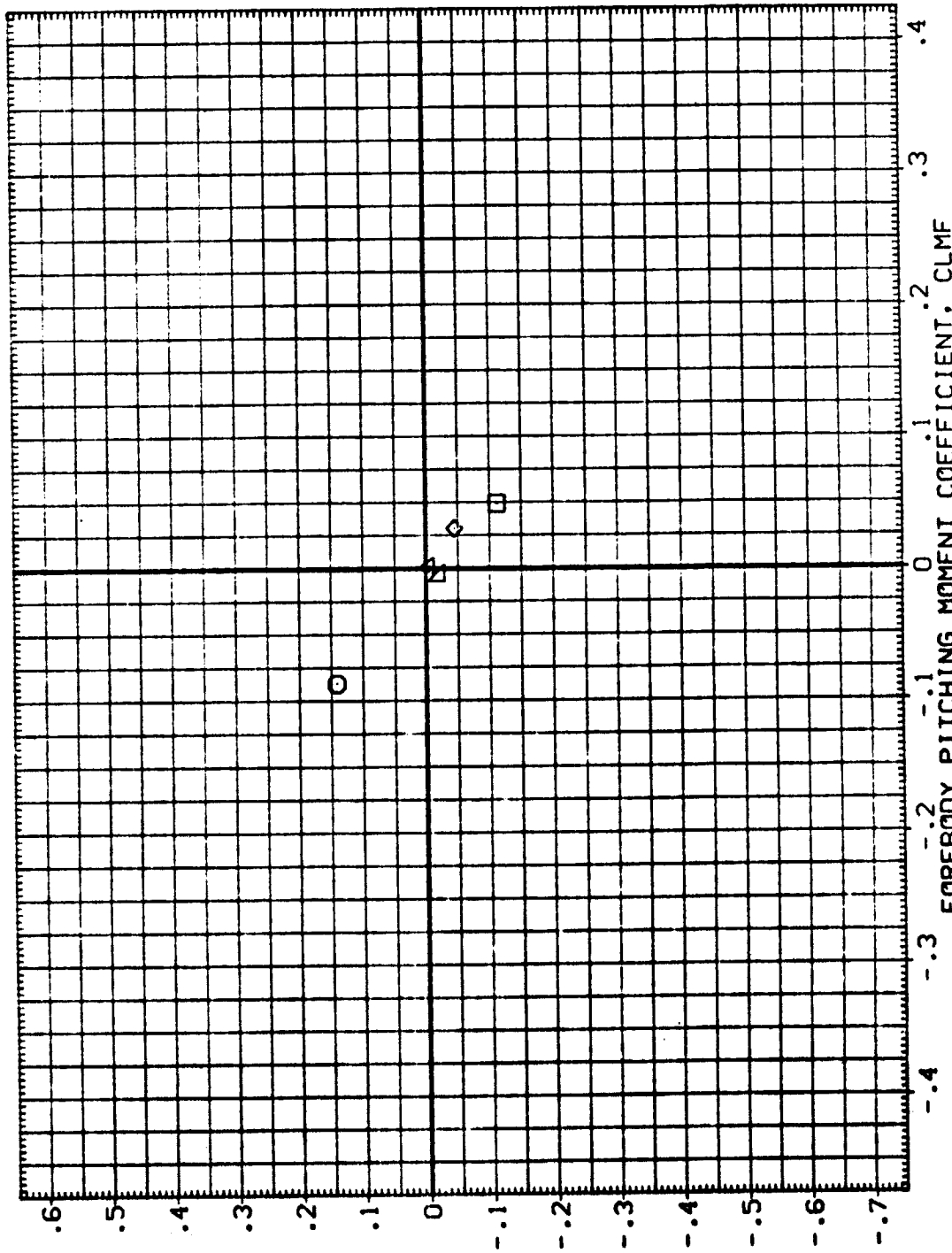


FIG. 6 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0

(A)BET.1 = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(MET043)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(MET143)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(METL43)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN.
(METR43)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	8.000	.000	1.550	.000	YMRP 976.0000 IN. YI
(METI43)	AMES97-019(IAB1) LVAP INT VEM ALL HL SEALED	8.000	.000	1.550	.000	ZMRP 400.0000 IN. ZI
						SCALE .0300

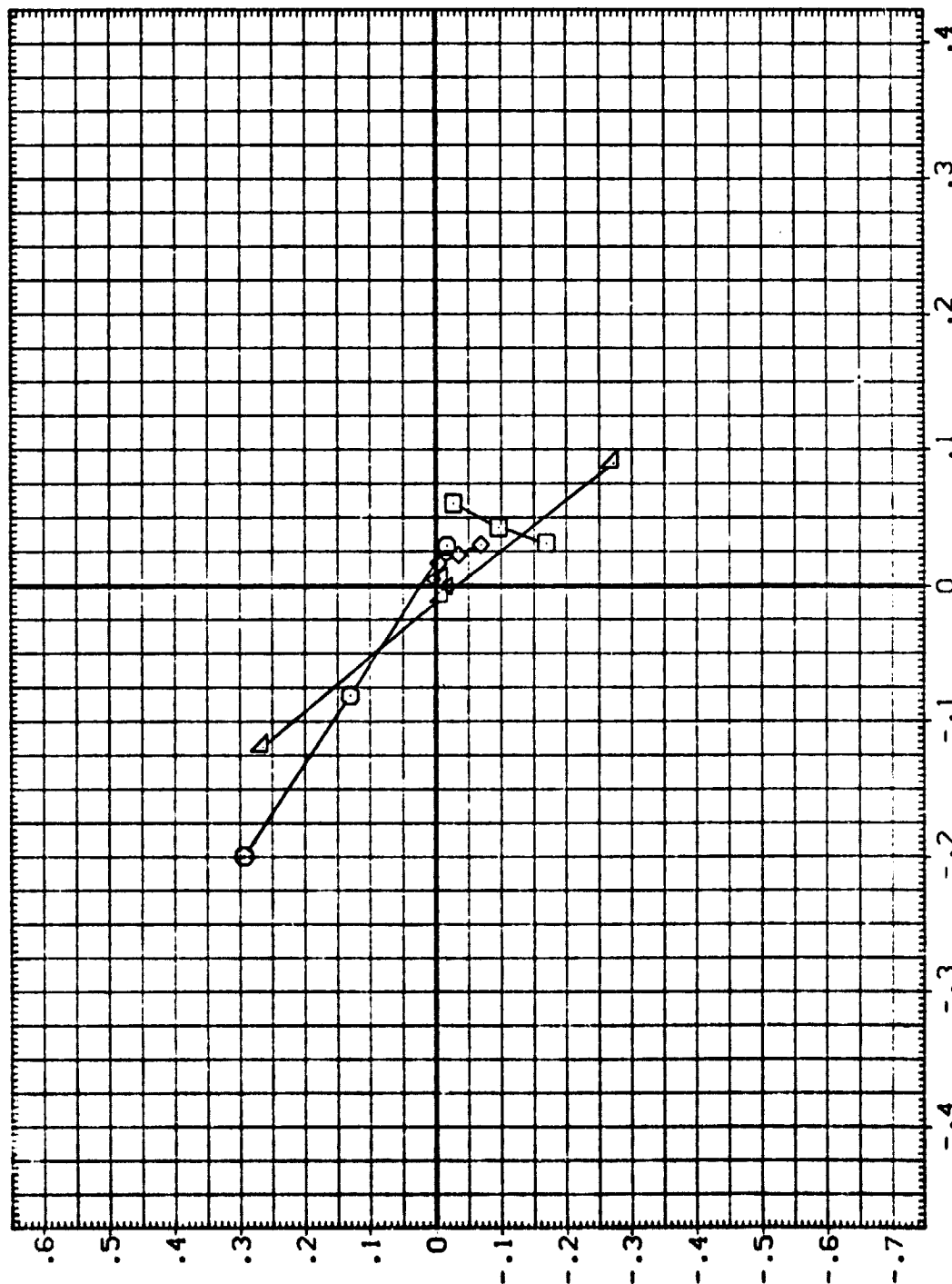


FIG. 6 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-CB	MACH	SPOBRK	REFERENCE INFORMATION	SO.FT.
(MET043)	AMES97-019C(1A81) LVAP ORBITER-ALL HL SEALED	8.000	.000	1.550	.000	SREF 2690.0000	IN.
(MET143)	AMES97-019C(1A81) LVAP TANK - ALL HL SEALED	8.000	.000	1.550	.000	LREF 1297.0000	IN.
(MET143)	AMES97-019C(1A81) LVAP L-SRB - ALL HL SEALED	8.000	.000	1.550	.000	BREF 1297.0000	IN.
(MET143)	AMES97-019C(1A81) LVAP R-LRB - ALL HL SEALED	8.000	.000	1.550	.000	XMRP 976.0000	IN.
(MET143)	AMES97-019C(1A81) LVAP INT VEH ALL HL SEALED	8.000	.000	1.550	.000	ZMRP 400.0000	IN.
						SCALE .0300	IN.

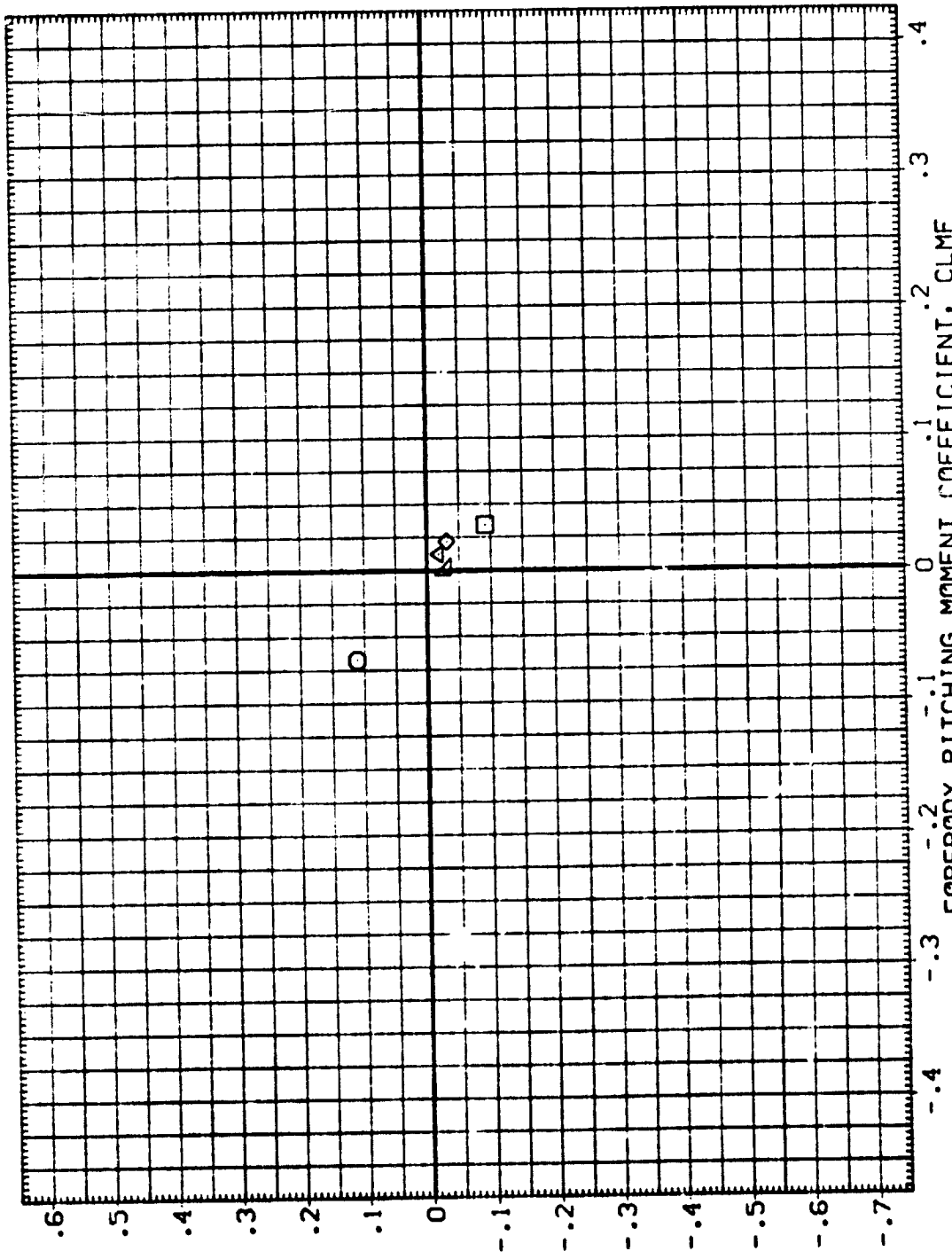


FIG. 6 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0
(C)BET.1 = -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(MET043)	AMES97-019(IAB1) LVAP CRBITER-ALL ML SEALED	8.000	.000	1.550	.000	SREF 2690.0000 SO.FT.
(MET143)	AMES97-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(METL43)	AMES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN.
(METR43)	AMES97-019(IAB1) LVAP R-LRB - ALL ML SEALED	8.000	.000	1.550	.000	XMRP 976.0000 IN. XT
(MET143)	AMES97-019(IAB1) LVAP INT VEH ALL ML SEALED	8.000	.000	1.550	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

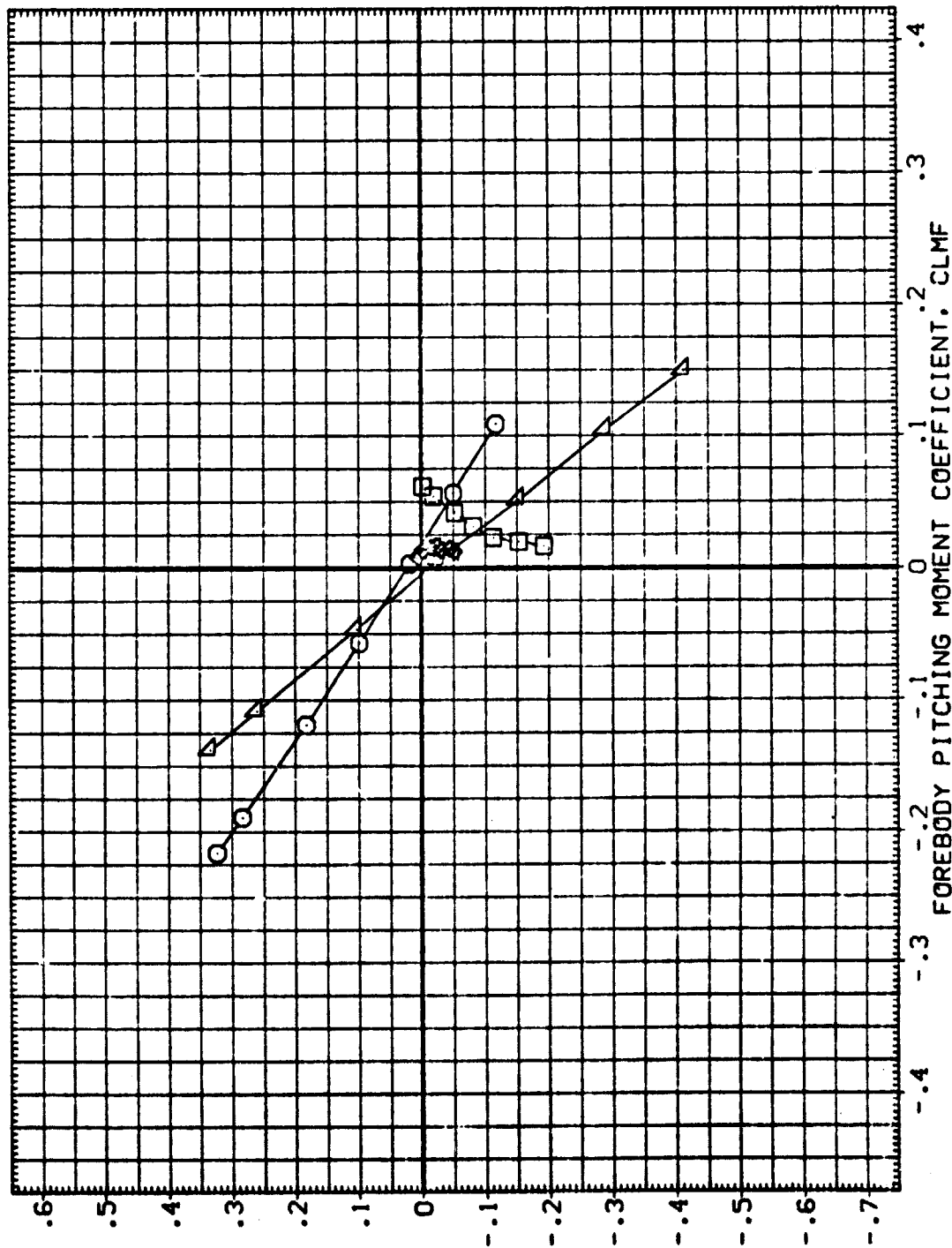


FIG. 6 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0

(DBET,I = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRBK	REFERENCE INFORMATION
(MET043)	AMES97-019(IAB1) LVAP ORRITER-ALL ML SEALED	8.000	.000	1.550	.000	SREF 2600.0000 SQ.FT.
(MET143)	AMES97-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(METL43)	AMES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	8.000	.000	1.550	.000	RREF 1297.0000 IN.
(METR43)	AMES97-019(IAB1) LVAP R-LRB ALL ML SEALED	8.000	.000	1.550	.000	XMRP 976.0000 IN.
(METI43)	AMES97-019(IAB1) LVAP INT VEN ALL ML SEALED	8.000	.000	1.550	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

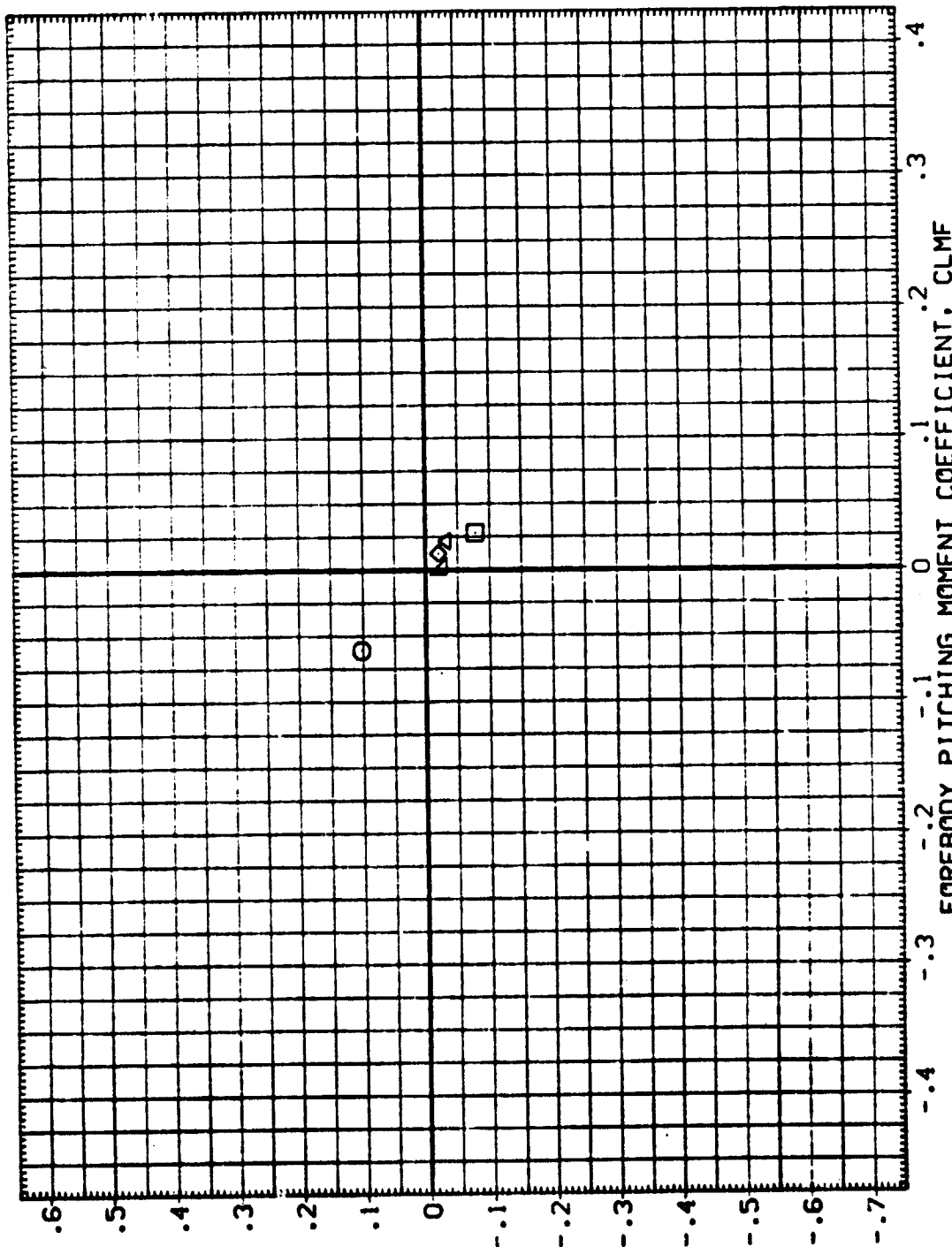


FIG. 6 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0

(E)BET.1 = 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRBK	REFERENCE INFORMATION
(MET043)	AMES97-019(IAB1) LVAP ORBITER-ALL SE	8.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(MET143)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(MET143)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN.
(MET143)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	.000	1.550	.000	XMRP 976.0000 IN. XT
(MET143)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	1.550	.000	YMRP 400.0000 IN. YI
						ZMRP 400.0000 IN. ZI
						SCALE .0300

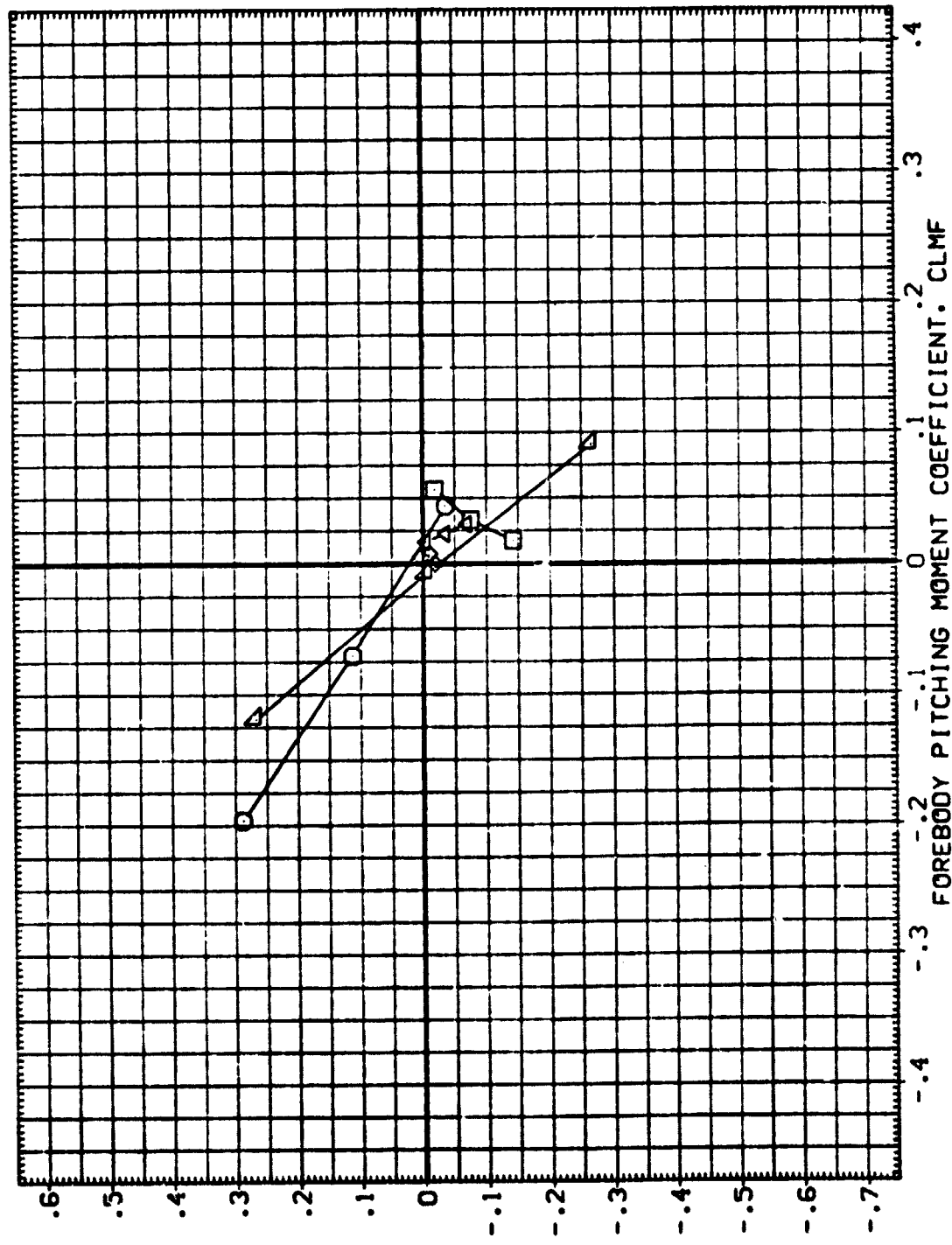


FIG. 6 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0

(F)BET.1 = 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(MET143)	AME597-019(1A81) LVAP ORBITER-ALL M _L SEALED	8.000	.000	1.550	.000	SREF 2690.0000 50.FT.
(MET143)	AME597-019(1A81) LVAP TANK - ALL M _L SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(MET143)	AME597-019(1A81) LVAP L-SRB - ALL M _L SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN. XT
(MET143)	AME597-019(1A81) LVAP R-LRB - ALL M _L SEALED	8.000	.000	1.550	.000	XMRP 976.0000 IN. YT
(MET143)	AME597-019(1A81) LVAP INT VEH ALL M _L SEALED	8.000	.000	1.550	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

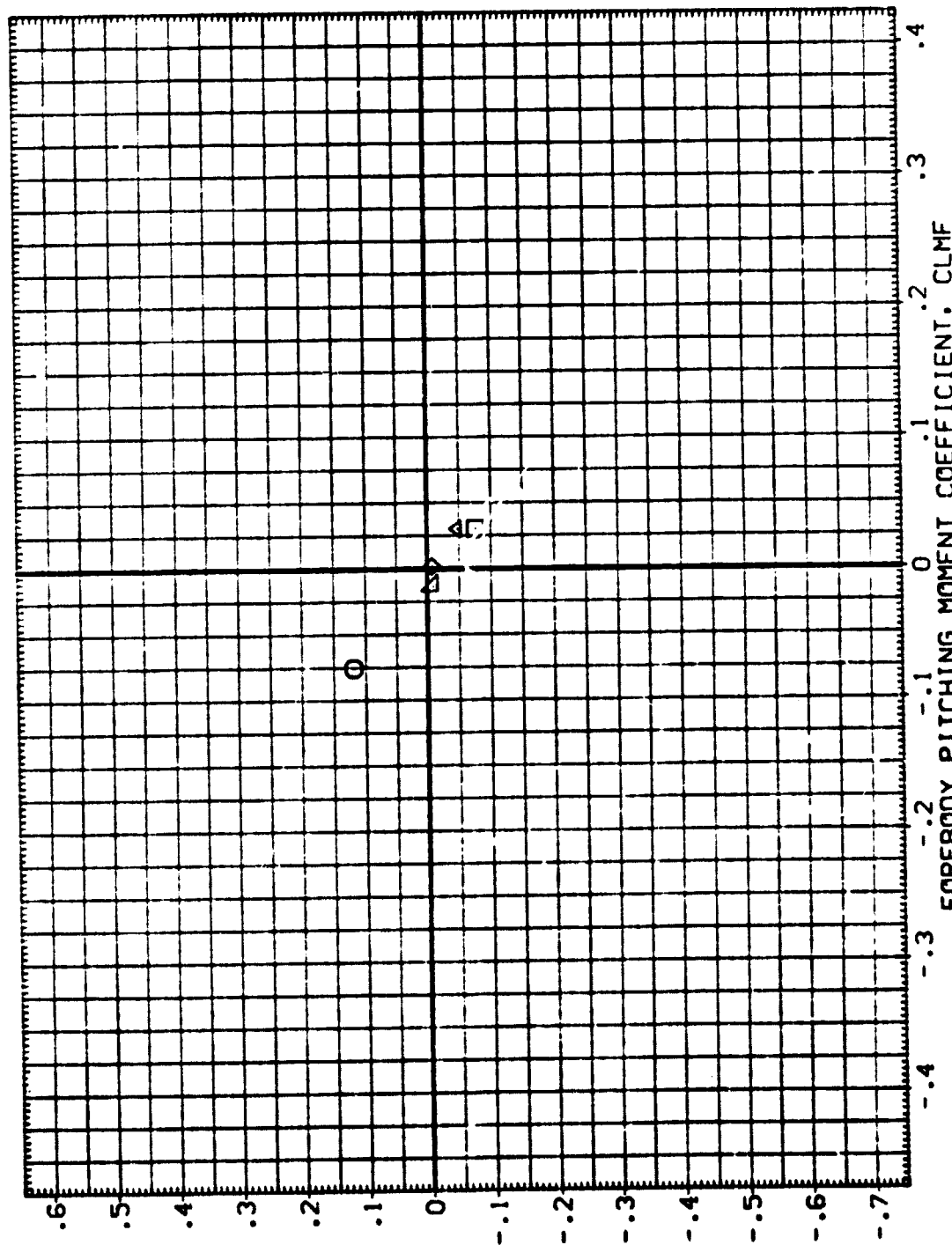


FIG. 6 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0

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ORIGINAL PAGE IS POOR

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(MET146)	AMES97-0191(A81) LVAP ORBITER-ALL HL SEALED	10.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(MET146)	AMES97-0191(A81) LVAP TANK - ALL HL SEALED	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(MET146)	AMES97-0191(A81) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(MET146)	AMES97-0191(A81) LVAP R-LRB - ALL HL SEALED	10.000	-4.000	1.550	.000	XPRP 976.0000 IN.
(MET146)	AMES97-0191(A81) LVAP INT VEH ALL HL SEALED	10.000	-4.000	1.550	.000	YPRP 400.0000 IN.
						ZPRP 400.0000 IN.
						SCALE .0300

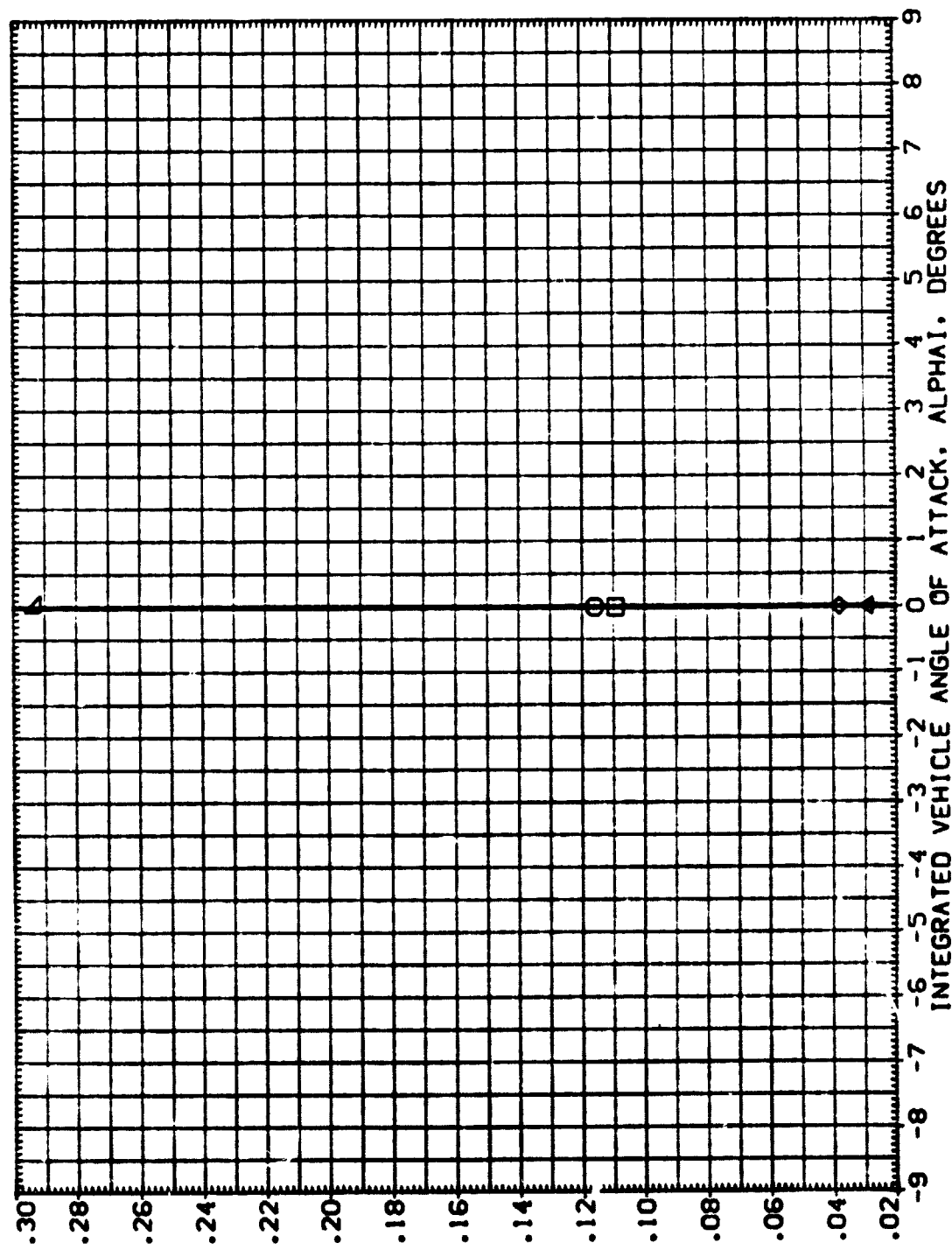


FIG. 7 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=10/-4

(A)BET.1 = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(NET046)	AMES97-019(IAB1) LVAP ORBITTER-ALL M. SEALED	10.000	-4.000	1.550	.000	SREF 2690.0000 SO.FT.
(NET046)	AMES97-019(IAB1) LVAP TANK - ALL M. SEALED	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(NET046)	AMES97-019(IAB1) LVAP L-508 - ALL M. SEALED	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(NET046)	AMES97-019(IAB1) LVAP R-LR8 ALL M. SEALED	10.000	-4.000	1.550	.000	XMRP 976.0000 IN. XT
(NET046)	AMES97-019(IAB1) LVAP INT VEH ALL M. SEALED	10.000	-4.000	1.550	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

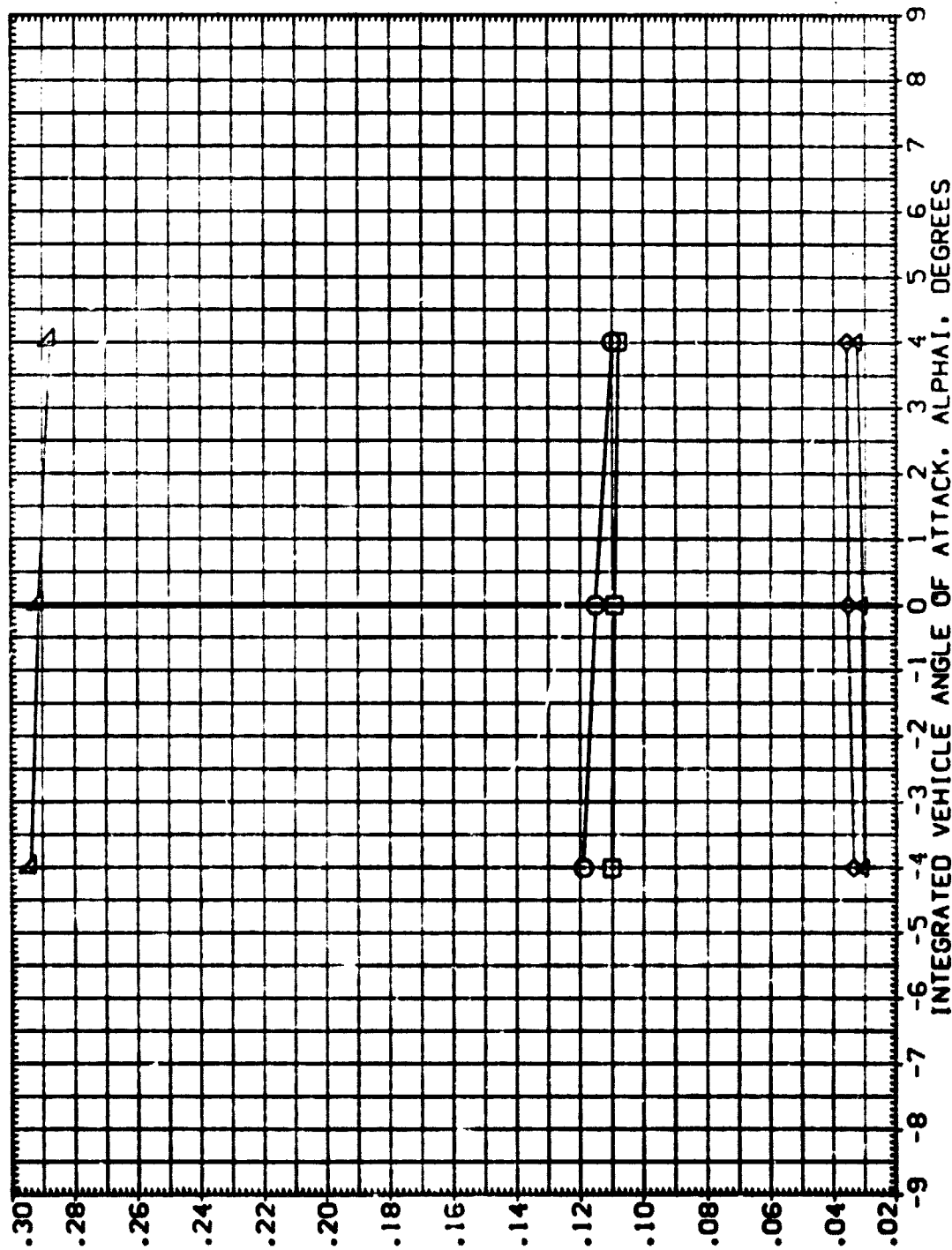


FIG. 7 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=10/-4

(B)BET.1 = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(MET146)	AMES97-019(IAB1) LVAP	10.000	-4.000	1.550	.000	SREF 2690.0000 50.FT.
(MET146)	AMES97-019(IAB1) LVAP	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(MET146)	AMES97-019(IAB1) LVAP	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(MET146)	AMES97-019(IAB1) LVAP	10.000	-4.000	1.550	.000	XMRP 976.0000 IN. XT
(MET146)	AMES97-019(IAB1) LVAP	10.000	-4.000	1.550	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

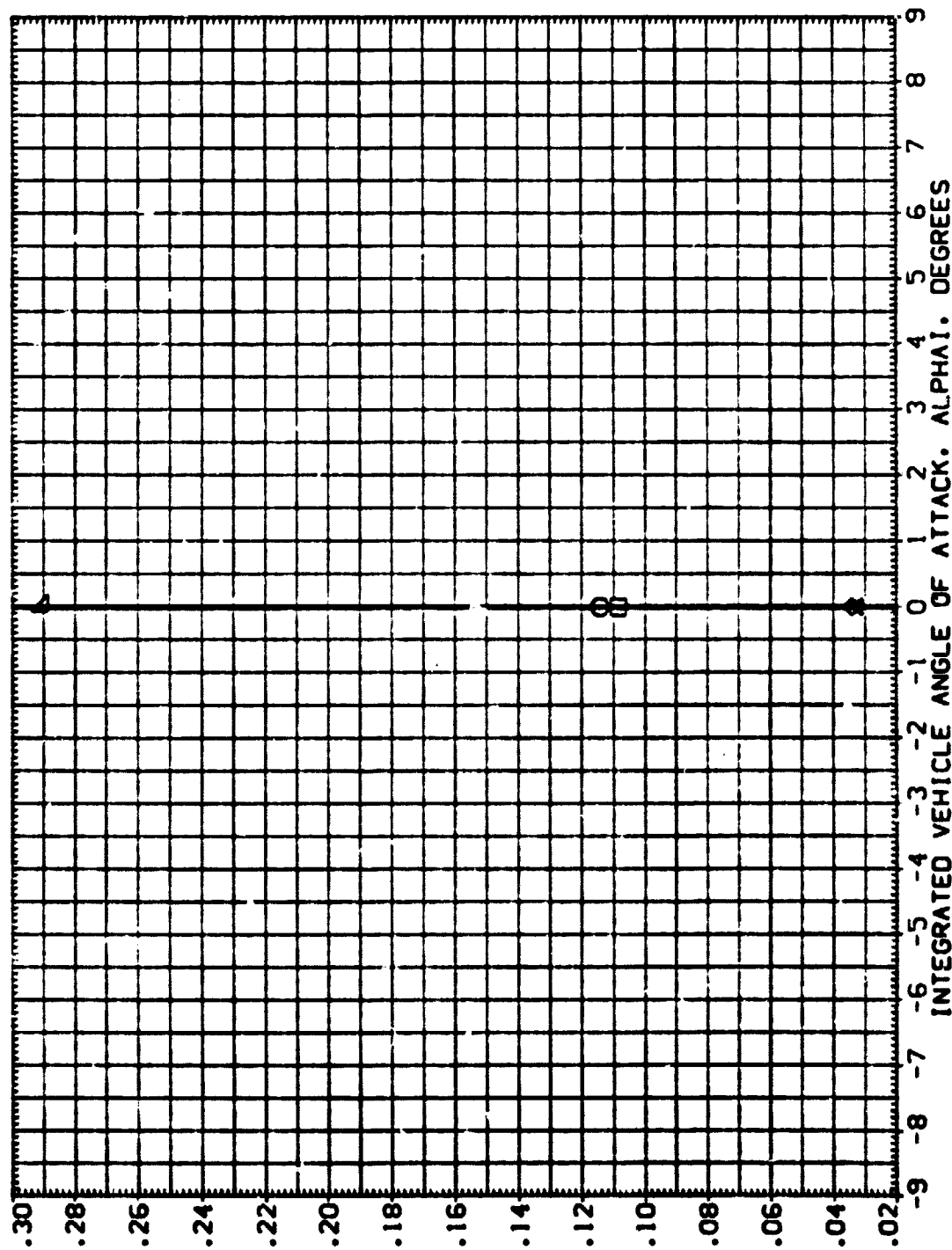


FIG. 7 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=10/-4

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(NET104) ANE597-019(IAB1) LVAP ORBITTER-ALL M SEALED
 (NET104) ANE597-019(IAB1) LVAP TANK - ALL M SEALED
 (NET104) ANE597-019(IAB1) LVAP L-SRB - ALL M SEALED
 (NET104) ANE597-019(IAB1) LVAP R-LRB ALL M SEALED
 (NET104) ANE597-019(IAB1) LVAP INT VEN ALL M SEALED

ELV-18 ELV-C8 MACH SFOBRK REFERENCE INFORMATION
 10.000 -4.000 1.550 .000 SREF 2590.0000 SO.FT.
 10.000 -4.000 1.550 .000 LREF 1297.0000 IN.
 10.000 -4.000 1.550 .000 BREF 1297.0000 IN.
 10.000 -4.000 1.550 .000 XMRP 976.0000 IN. XT
 10.000 -4.000 1.550 .000 YMRP .0000 IN. YT
 10.000 -4.000 1.550 .000 ZMRP 400.0000 IN. ZT
 SCALE 400.0300

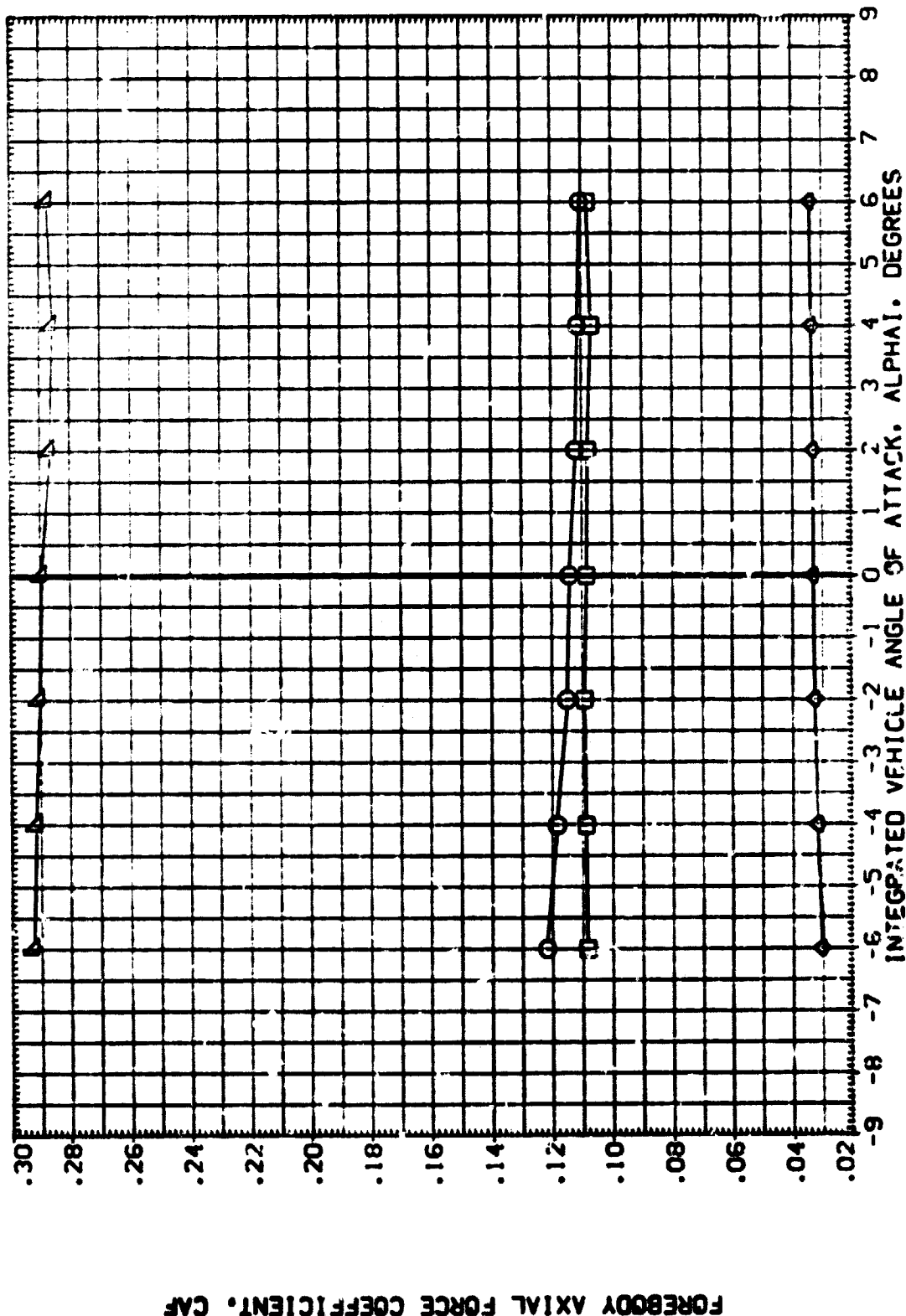


FIG. 7 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=1.55$ $DEV=10/-4$

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-CB	MACH	SPDBRK	REFERENCE INFORMATION
(MET046)	AMES97-019(IAB1) LVAP	10.000	-4.000	1.550	.000	SREF 2690.0000 SO.FT.
(MET146)	AMES97-019(IAB1) LVAP	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(MET146)	AMES97-019(IAB1) LVAP	10.000	-4.000	1.550	.000	GREF 1297.0000 IN.
(MET146)	AMES97-019(IAB1) LVAP	10.000	-4.000	1.550	.000	XHRP 976.0000 IN. XT
(MET146)	AMES97-019(IAB1) LVAP	10.000	-4.000	1.550	.000	ZHRP 400.0000 IN. YT
						SCALE .0300

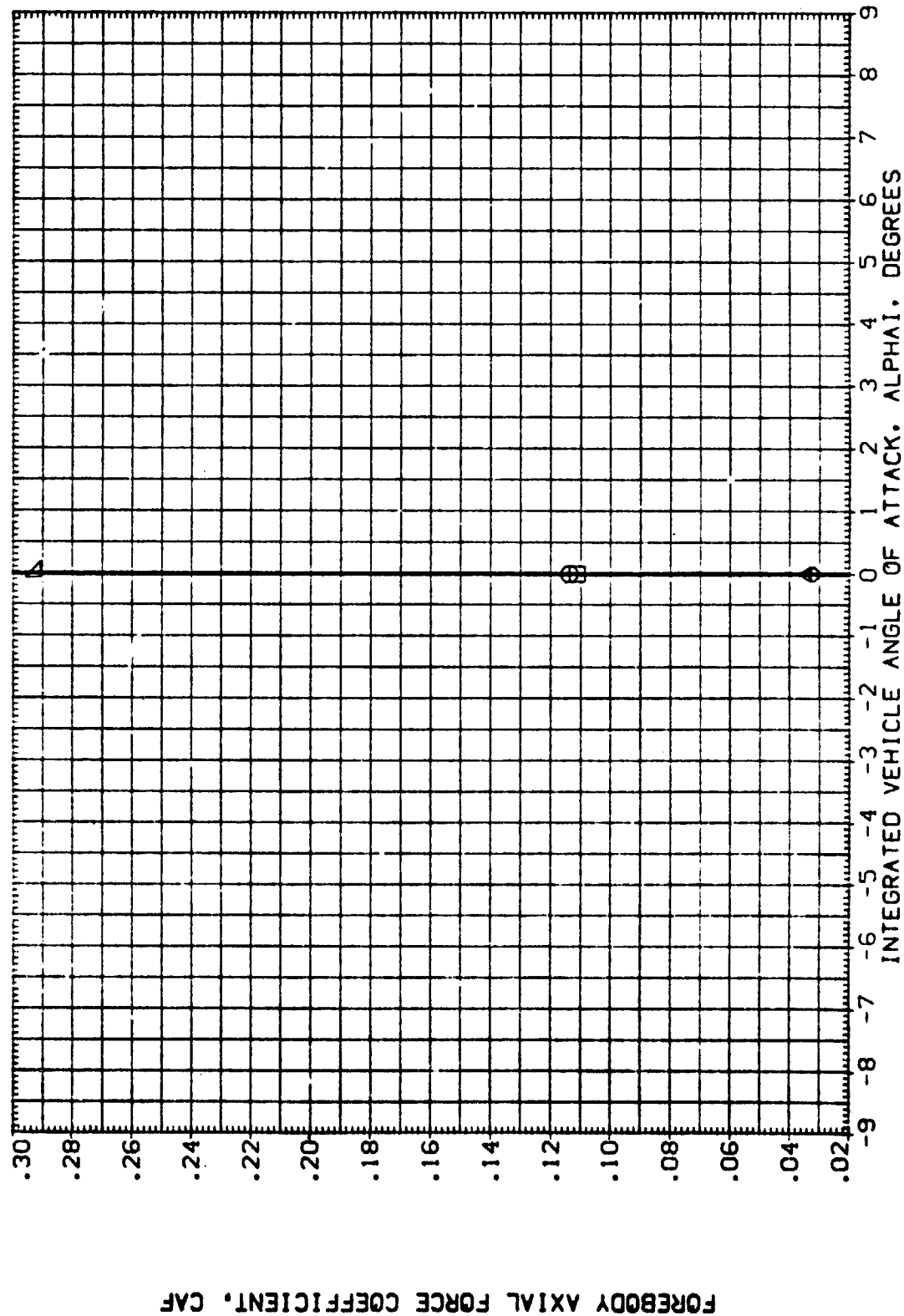


FIG. 7 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=10/-4

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(MET046)	AMES97-0191(A81) LVAP ORBITER-ALL HL SEALED	10.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(MET146)	AMES97-0191(A81) LVAP TANK - ALL HL SEALED	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(MET146)	AMES97-0191(A81) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(MET146)	AMES97-0191(A81) LVAP R-LRB ALL HL SEALED	10.000	-4.000	1.550	.000	XMRP 976.0000 IN. XT
(MET146)	AMES97-0191(A81) LVAP INT VEH ALL HL SEALED	10.000	-4.000	1.550	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

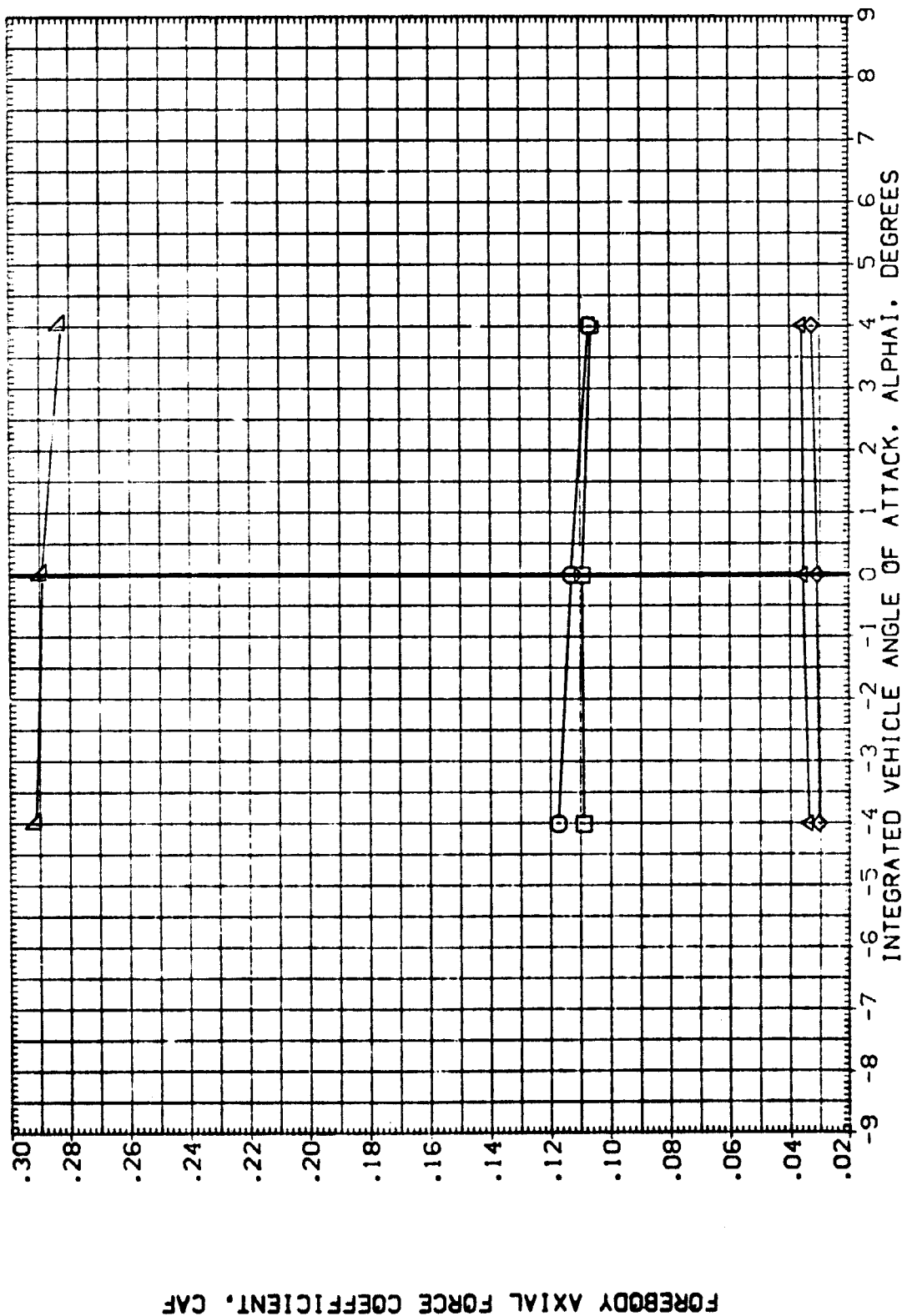


FIG. 7 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=10/-4

(F)BETA1 = 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPOBRK	REFERENCE INFORMATION			
(MET046)	AMES97-019(IAB1) LVAP CRB1 TER-ALL HL SEALED	10.000	-4.000	1.550	.000	SREF	2690.0000	50.FT.	
(MET146)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	10.000	-4.000	1.550	.000	LREF	1297.0000	IN.	
(METL46)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	1.550	.000	BREF	1297.0000	IN.	XT
(METR46)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	10.000	-4.000	1.550	.000	XMRP	976.0000	IN.	YT
(METI46)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	10.000	-4.000	1.550	.000	ZMRP	400.0000	IN.	ZT
						SCALE	.0300		

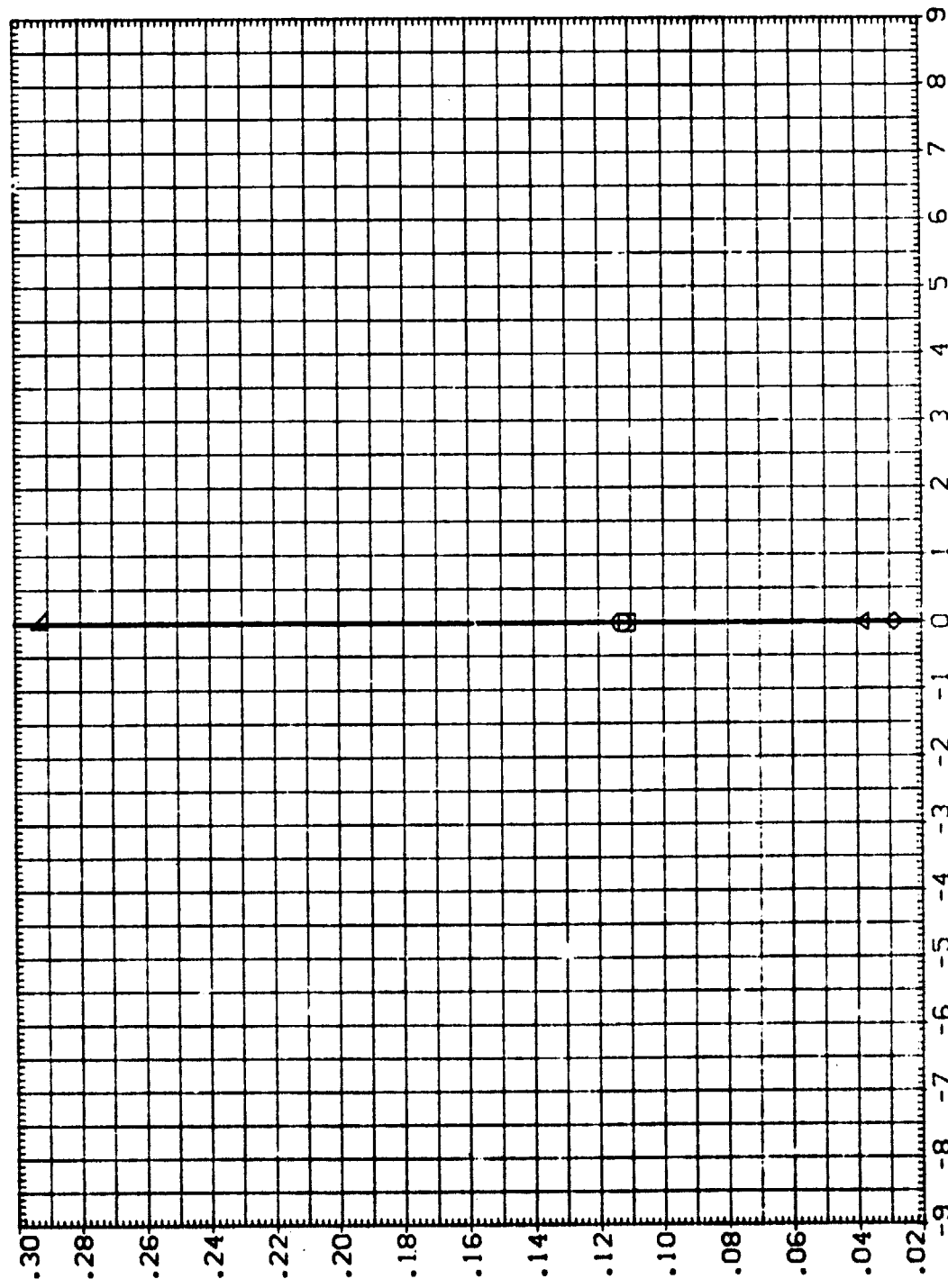


FIG. 7 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=10/-4

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(MET046)	APES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	10.000	-4.000	1.550	.000	SREF 2690.0000 SO.FT.
(MET146)	APES97-019(IAB1) LVAP TANK - ALL HL SEALED	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(MET146)	APES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	1.550	.000	BREF 1297.0000 IN. XT
(MET146)	APES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	10.000	-4.000	1.550	.000	YMRP 976.0000 IN. YT
(MET146)	APES97-019(IAB1) LVAP INT VEH ALL HL SEALED	10.000	-4.000	1.550	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

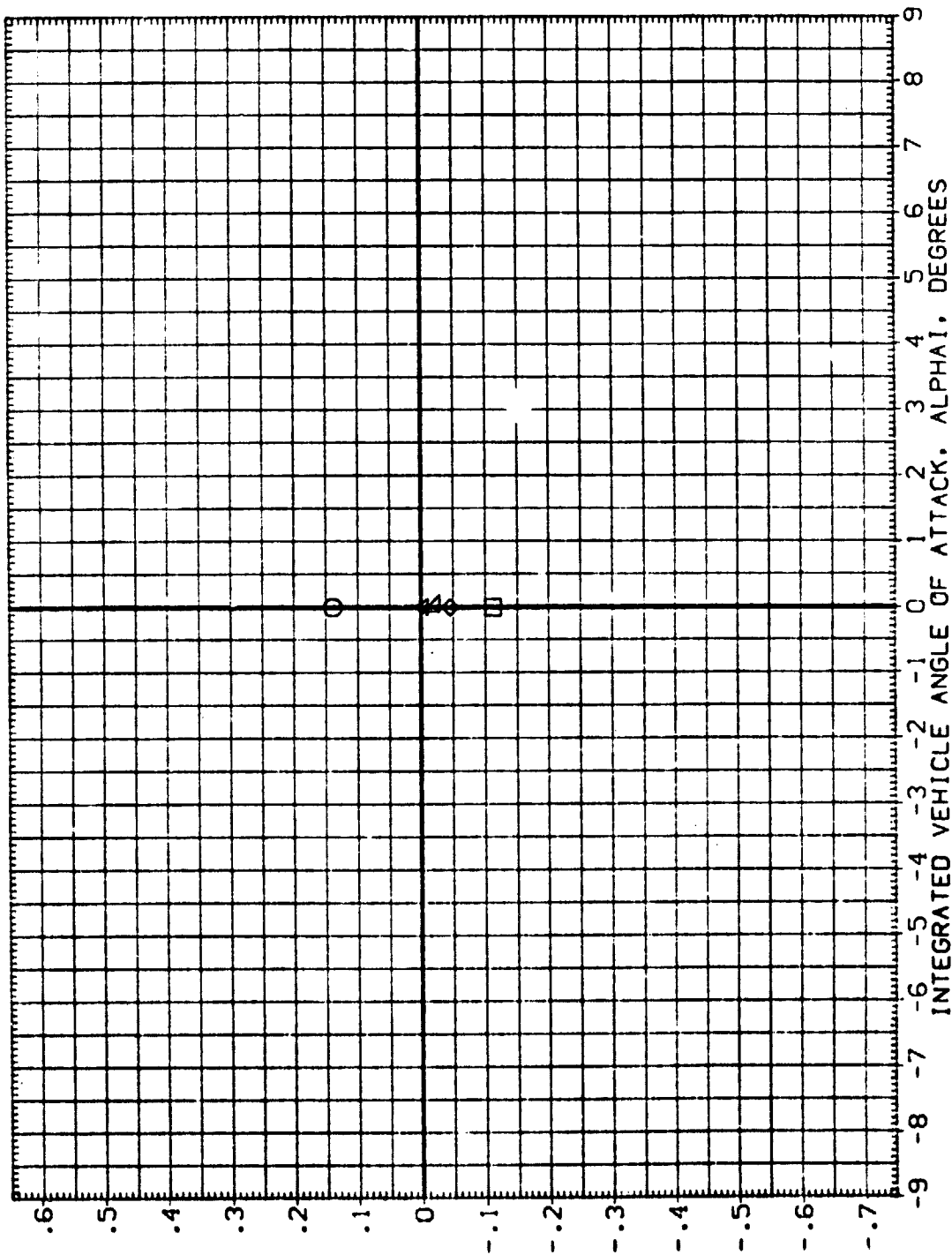
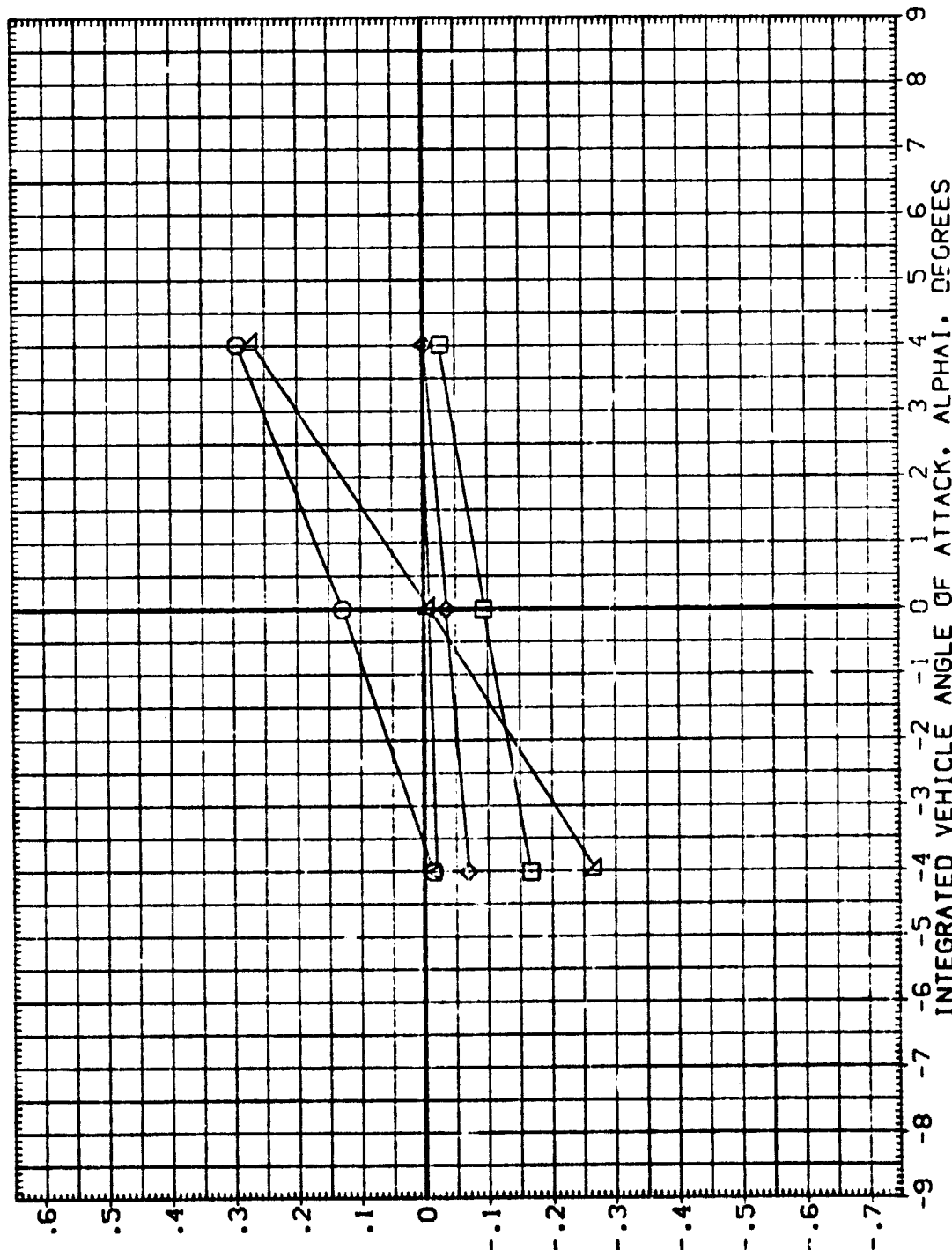


FIG. 7 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=10/-4

(A)BET.1 = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(MET046)	AMES97-019(1A81) LVAP ORBITTER-ALL HL SEALED	10.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(MET146)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(MET146)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(MET146)	AMES97-019(1A81) LVAP R-LRB ALL HL SEALED	10.000	-4.000	1.550	.000	XMRP 976.0000 IN. XT
(MET146)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	10.000	-4.000	1.550	.000	YMRP 400.0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300



FOREBODY NORMAL FORCE COEFFICIENT, CNF

FIG. 7 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=10/-4

(B)BET.1 = -4.00

FOREBODY NORMAL FORCE COEFFICIENT, CNF

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(MET046)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	10.000	-4.000	1.550	.000	SREF 2690.0000 50. FT.
(MET146)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(MET146)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	1.550	.000	SREF 1297.0000 IN.
(MET146)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	10.000	-4.000	1.550	.000	XMRP 976.0000 IN. XT
(MET146)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	10.000	-4.000	1.550	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

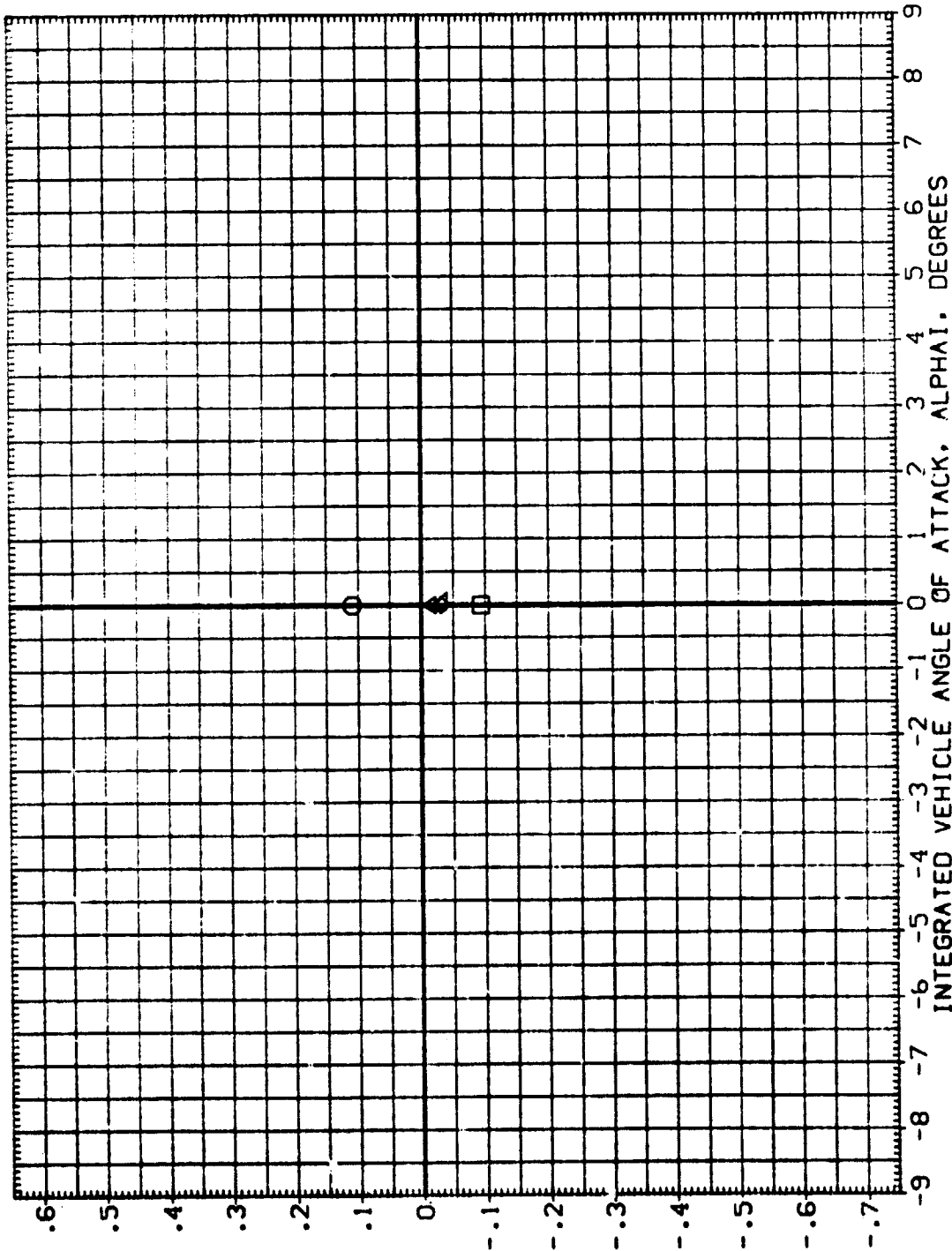


FIG. 7 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=10/-4

(C)BET.1 = -2.00

REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(MET046)	AME597-019(1A81) LVAP	10.000	-4.000	1.550	.000	SREF 2690.0000
(MET046)	AME597-019(1A81) LVAP	10.000	-4.000	1.550	.000	LREF 1297.0000
(MET046)	AME597-019(1A81) LVAP	10.000	-4.000	1.550	.000	BREF 1297.0000
(MET046)	AME597-019(1A81) LVAP	10.000	-4.000	1.550	.000	XMRP 976.0000
(MET046)	AME597-019(1A81) LVAP	10.000	-4.000	1.550	.000	YMRP .0000
						ZMRP .0000
						SCALE 400.0300

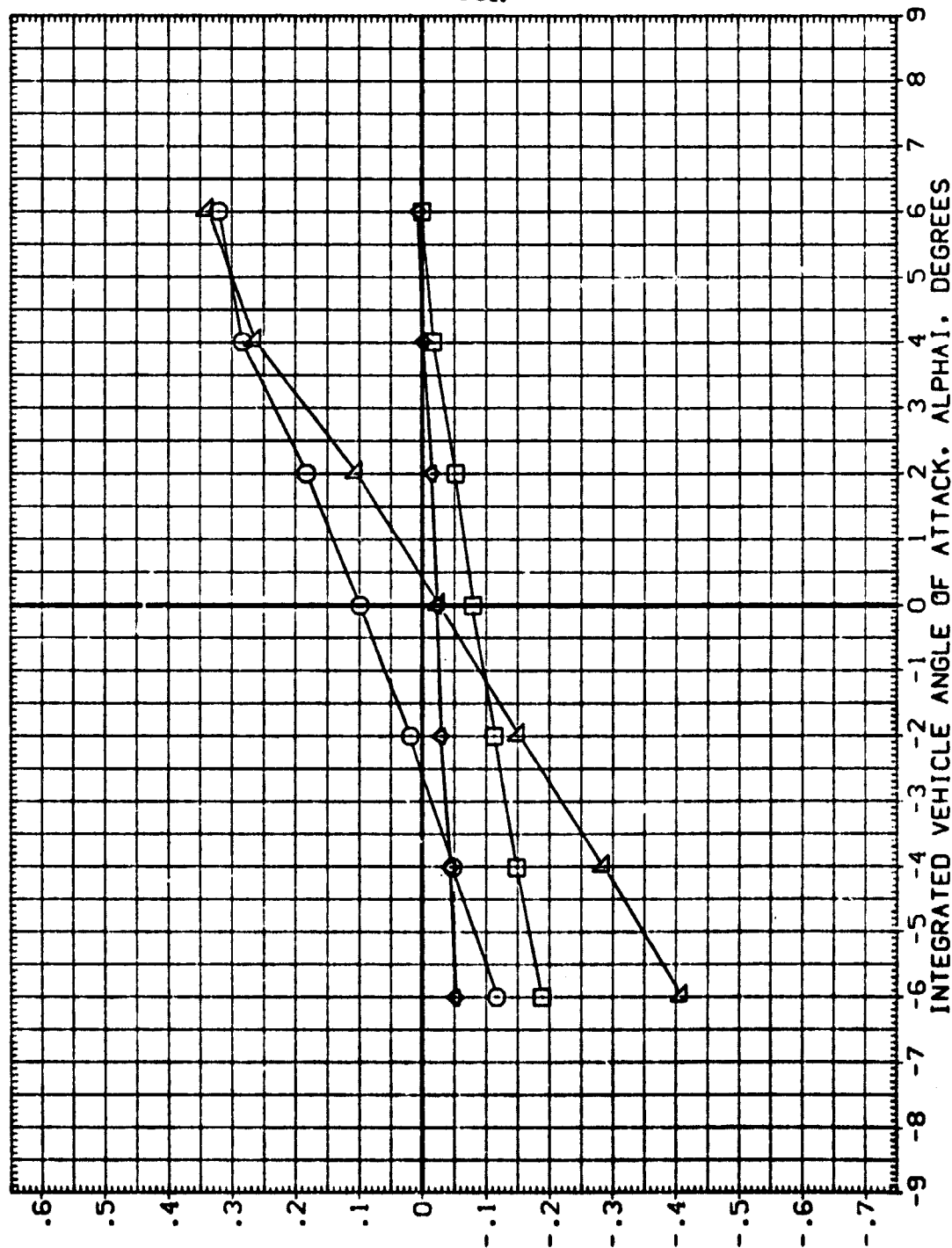


FIG. 7 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=10/-4

(0)BET, I = .00

DATA SET SYMBOL CONFIGURATION DESCRIPTION

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(MET046)	AMES97-019(IAB1) LVAP ORBITER-ALL ML SEALED	10.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(MET146)	AMES97-019(IAB1) LVAP TANK - ALL ML SEALED	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(MET145)	AMES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(MET145)	AMES97-019(IAB1) LVAP R-LRB - ALL ML SEALED	10.000	-4.000	1.550	.000	XMRP 976.0000 IN. XT
(MET145)	AMES97-019(IAB1) LVAP INT VEH ALL ML SEALED	10.000	-4.000	1.550	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

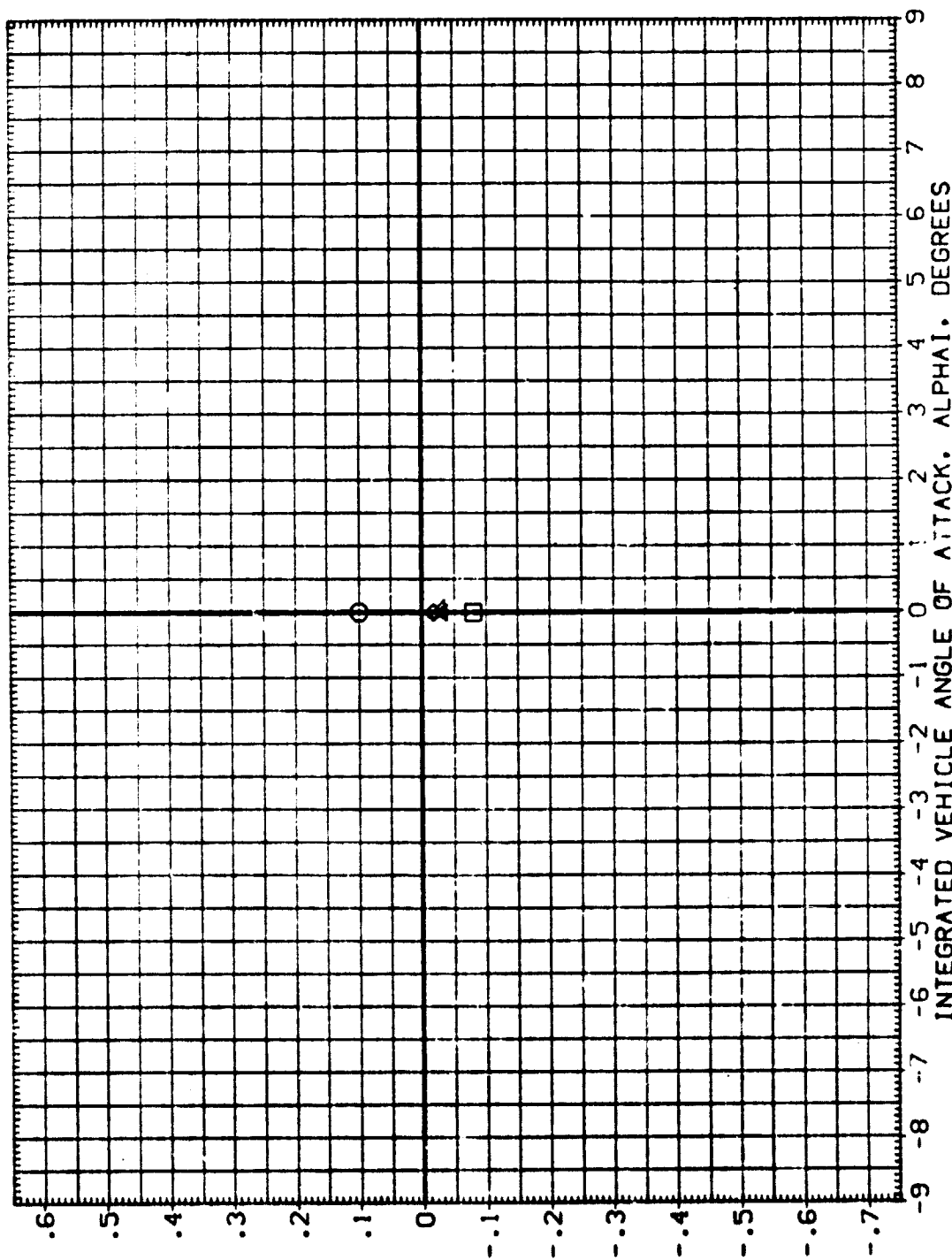
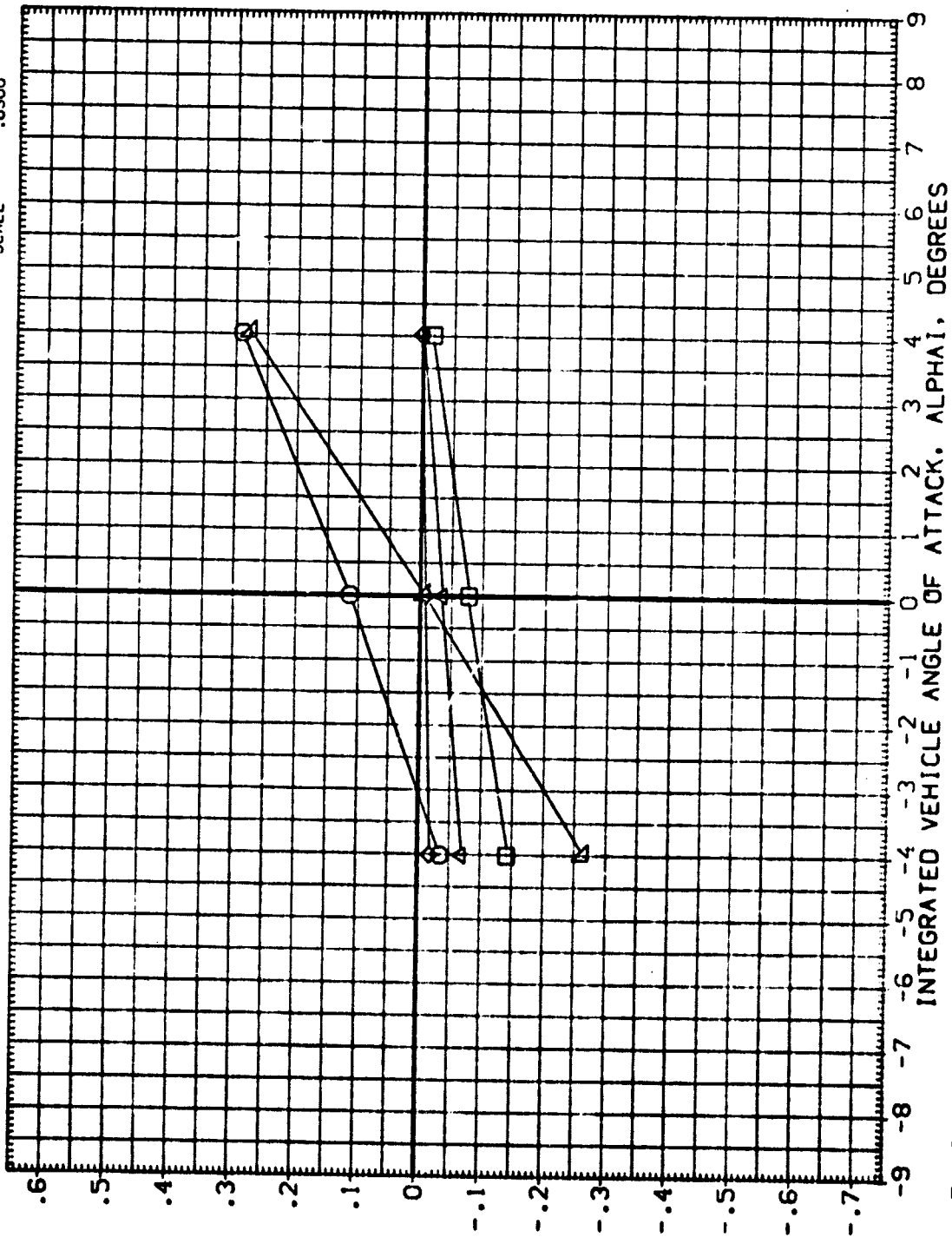


FIG. 7 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=10/-4

(E)BET.1 = 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(MET046)	AMES97-019(IAB1) LVAP ORBITER ALL HL SEALED	10.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(MET146)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(MET146)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(MET146)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	10.000	-4.000	1.550	.000	XMRP 976.0000 IN.
(MET146)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	10.000	-4.000	1.550	.000	VMRP .0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300



FOREBODY NORMAL FORCE COEFFICIENT, CNF

FIG. 7 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=10/-4

(F)BET.1 = 4.00

DATA SET SYMBOL

NAME	CONFIGURATION	DESCRIPTION
AMES97-019C1A81	LVAP	Q98J
AMES97-019C1A81	LVAP	TANKS
AMES97-019C1A81	LVAP	L-5R
AMES97-019C1A81	LVAP	R-LR8
AMES97-019C1A81	LVAP	INT VEH

TER-ALL HL SEALED
- ALL HL SEALED
- ALL HL SEALED
ALL HL SEALED
ALL HL SEALED

ELV-1B	ELV-CB	MACH	SPDBRK	REFERENCE INFORMATION					
10.000	-4.000	1.550	.000	SREF	2690	.0000	SO	FT.	
10.000	-4.000	1.550	.000	LREF	1297	.0000	IN	IN	
10.000	-4.000	1.550	.000	BREF	1237	.0000	IN	IN	
10.000	-4.000	1.550	.000	XMRP	976	.0000	IN	YT	
10.000	-4.000	1.550	.000	ZMRP	.0000	.0000	IN	ZT	
10.000	-4.000	1.550	.000	ZSCALE	400	.0300	IN	ZT	

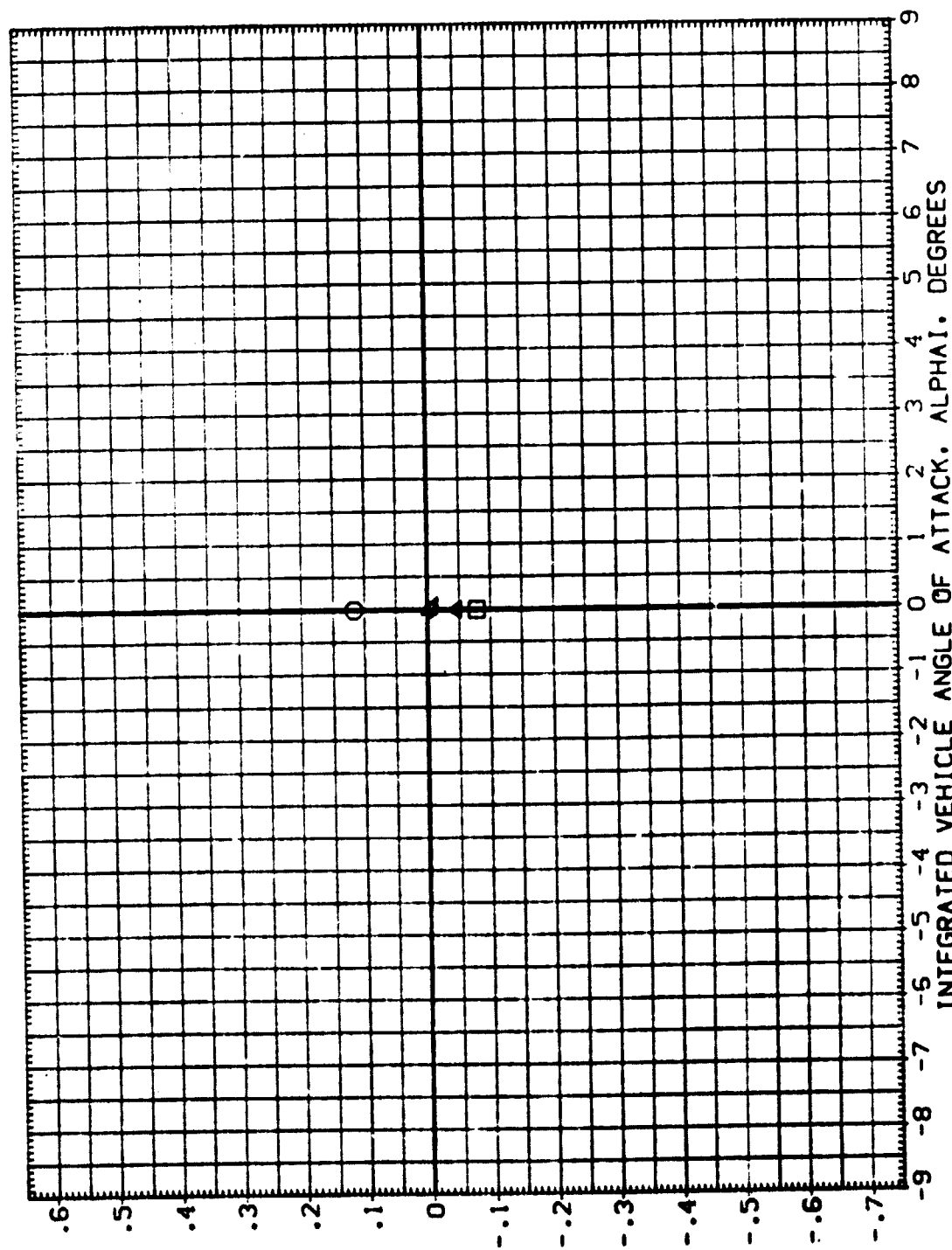


FIG. 7 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=1.55$ $DEV=10/-4$

$$(G)BET = 6.00$$

DATA SET SYMOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(MET046)	AMES97-019(IAB1) LVAP ORBITTER-ALL M SEALED	10.000	-4.000	1.550	.000	SREF 2650.0000 SO.FT. IN.
(MET146)	AMES97-019(IAB1) LVAP TANK - ALL M SEALED	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(METL46)	AMES97-019(IAB1) LVAP L-SRB - ALL M SEALED	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(METR46)	AMES97-019(IAB1) LVAP R-LRB ALL M SEALED	10.000	-4.000	1.550	.000	XMRP 376.0000 IN. XT
(METI46)	AMES97-019(IAB1) LVAP INT VEH ALL M SEALED	10.000	-4.000	1.550	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

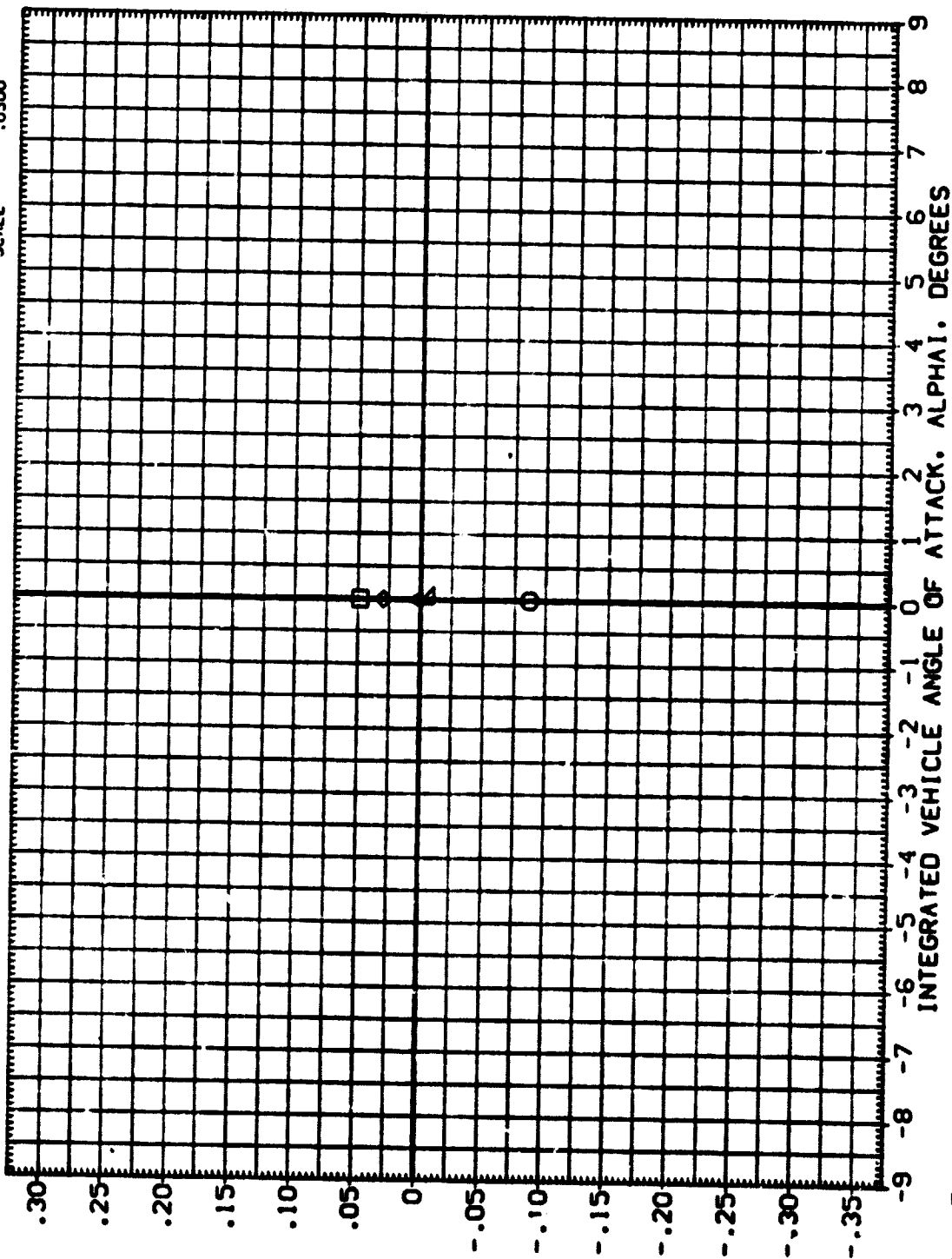


FIG. 7 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=10/-4

(A)BET.1 = -6.00

FOREBODY PITCHING MOMENT COEFFICIENT, CMF

DATA SET SYMBOL: (MET046) (MET146) (MET146) (MET146) (MET146)

CONFIGURATION DESCRIPTION: ARES97-0191 (AB1) LVAP CRBITER-ALL M1 SEALED ARES97-0191 (AB1) LVAP TANKS - ALL M1 SEALED ARES97-0191 (AB1) LVAP L-CRB - ALL M1 SEALED ARES97-0191 (AB1) LVAP R-LRB - ALL M1 SEALED ARES97-0191 (AB1) LVAP INT VEN ALL M1 SEALED

ELV-10: 10.000 10.000 10.000 10.000 10.000 10.000 10.000 10.000 10.000 10.000

FLV-08: -4.000 -4.000 -4.000 -4.000 -4.000 -4.000 -4.000 -4.000 -4.000 -4.000

MACH: 1.550 1.550 1.550 1.550 1.550 1.550 1.550 1.550 1.550 1.550

SUBRK: .000 .000 .000 .000 .000 .000 .000 .000 .000 .000

REFERENCE INFORMATION: SREF 2690.0000 SQ.FT. LREF 1297.0000 IN. BREF 1297.0000 IN. XMRP 976.0000 IN. YMRP 400.0000 IN. ZMRP 400.0000 IN. SCALE .0300

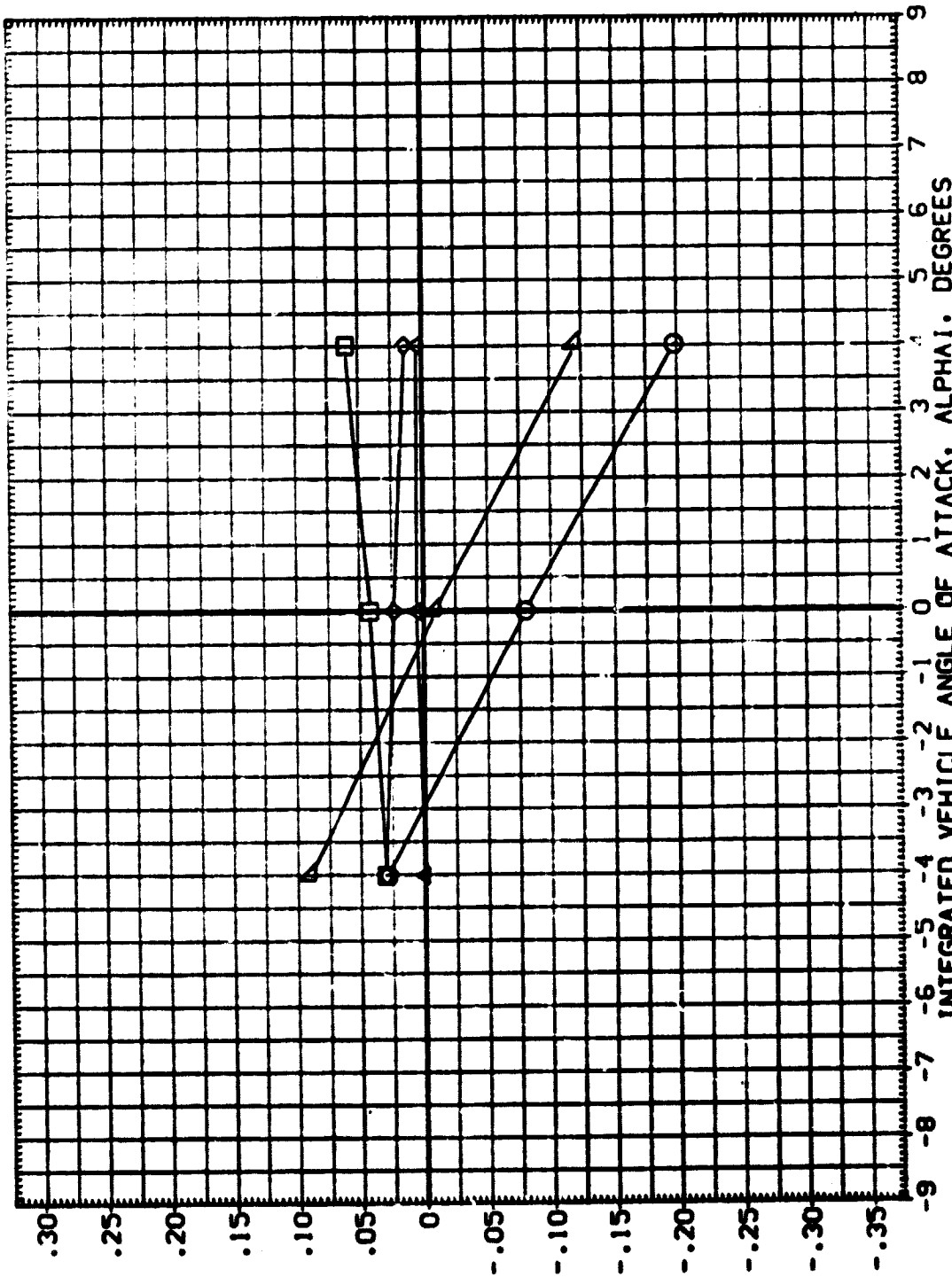


FIG. 7 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=10/-4

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(MET146)	AME597-0191(A81) LVAP ORBITTER-ALL ML SEALED	10.000	-4.000	1.550	.000	SREF 2690.0000 SO.FT.
(MET146)	AME597-0191(A81) LVAP TANK - ALL ML SEALED	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(MET146)	AME597-0191(A81) LVAP L-CRB - ALL ML SEALED	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(MET146)	AME597-0191(A81) LVAP R-LRB - ALL ML SEALED	10.000	-4.000	1.550	.000	XHREF 976.0000 IN.
(MET146)	AME597-0191(A81) LVAP INT VEH ALL ML SEALED	10.000	-4.000	1.550	.000	YHREF 400.0000 IN.
						ZHREF 0.0000 IN.
						SCALE 0.0300

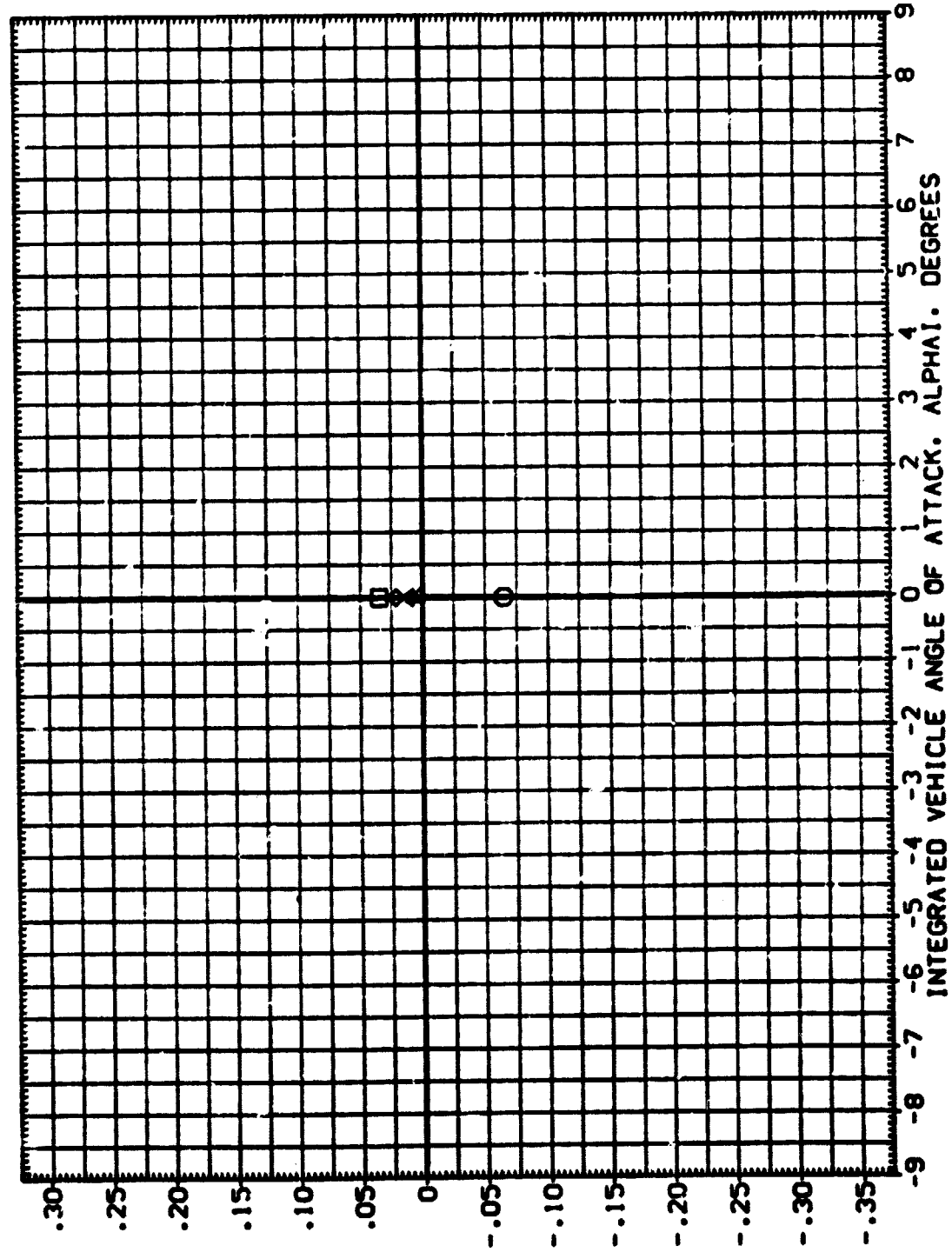


FIG. 7 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=10/-4

(CJBET.1 = -2.00

DATA SET SYMBOL
(NET1045)
(NET1045)
(NET1045)
(NET1045)
(NET1045)

CONFIGURATION DESCRIPTION
ANE557-019(IAB1) LVAP ORBITER-ALL ML SEALED
ANE557-019(IAB1) LVAP TANK - ALL ML SEALED
ANE557-019(IAB1) LVAP L-SRB - ALL ML SEALED
ANE557-019(IAB1) LVAP R-LRB - ALL ML SEALED
ANE557-019(IAB1) LVAP INT VEH ALL ML SEALED

ELV-1B ELV-09 MACH SPCORR
10.000 -4.000 1.550 .000
10.000 -4.000 1.550 .000
10.000 -4.000 1.550 .000
10.000 -4.000 1.550 .000
10.000 -4.000 1.550 .000

REFERENCE INFORMATION
GREF 2690.0000 SQ.FT.
LREF 1297.0000 IN.
BREF 1297.0000 IN.
XMRP 976.0000 IN.
YMRP .0000 IN.
ZMRP 400.0000 IN.
SCALE .0300

FOREBODY PITCHING MOMENT COEFFICIENT, CLMF

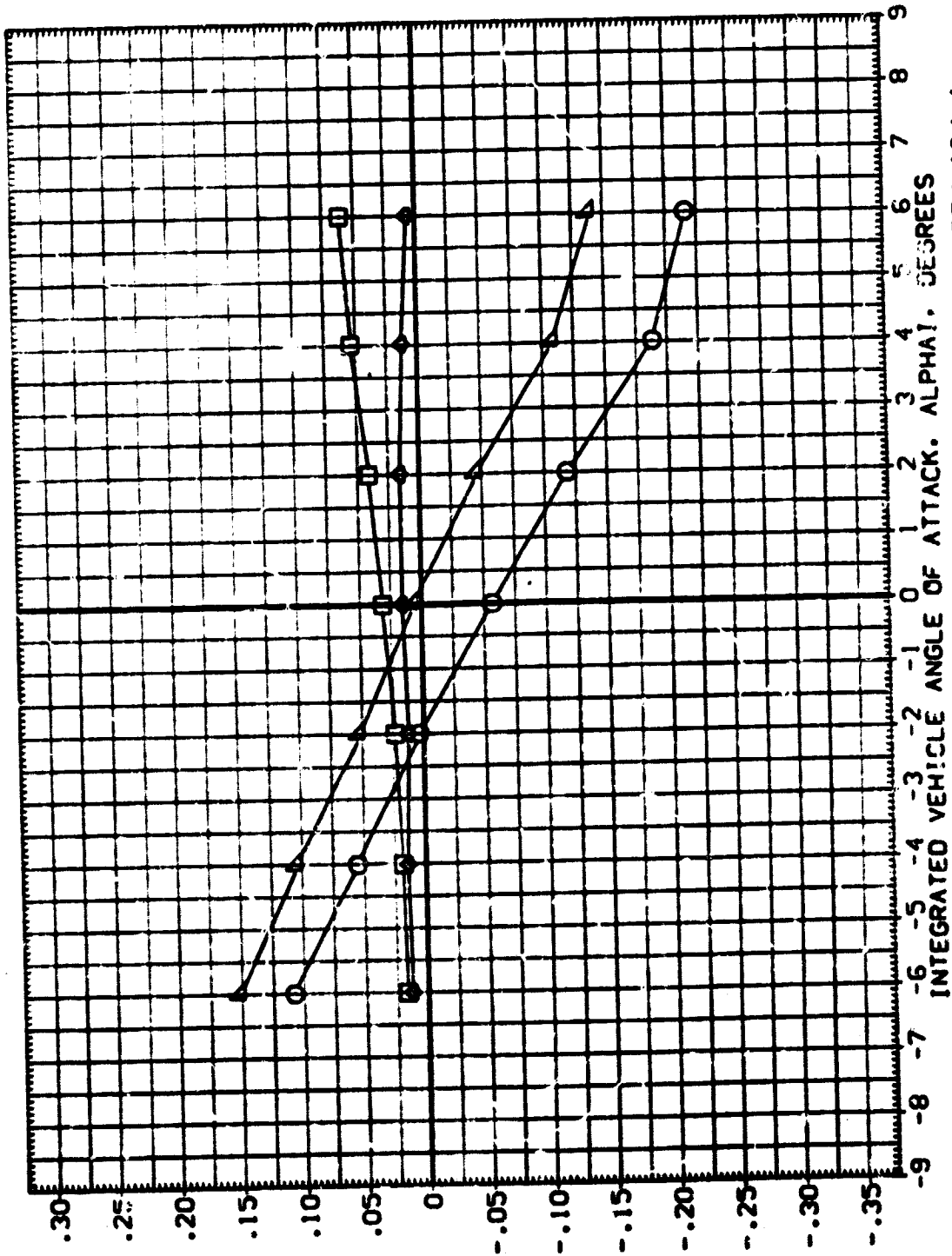


FIG. 7 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=1.55$ $DEV=10/-4$

(O)BET.1 = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDBRK	REFERENCE INFORMATION
AMES97-019(IAB1)	LVAP	10.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(MET046)	ORBITER-ALL HL SEALED	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(MET146)	TANK - ALL HL SEALED	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(MET146)	L-SRB - ALL HL SEALED	10.000	-4.000	1.550	.000	XMRP 976.0000 IN. XT
(MET146)	LVAP R-1RB ALL HL SEALED	10.000	-4.000	1.550	.000	YMRP 400.0000 IN. YT
(MET146)	LVAP INT VEH ALL HL SEALED	10.000	-4.000	1.550	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

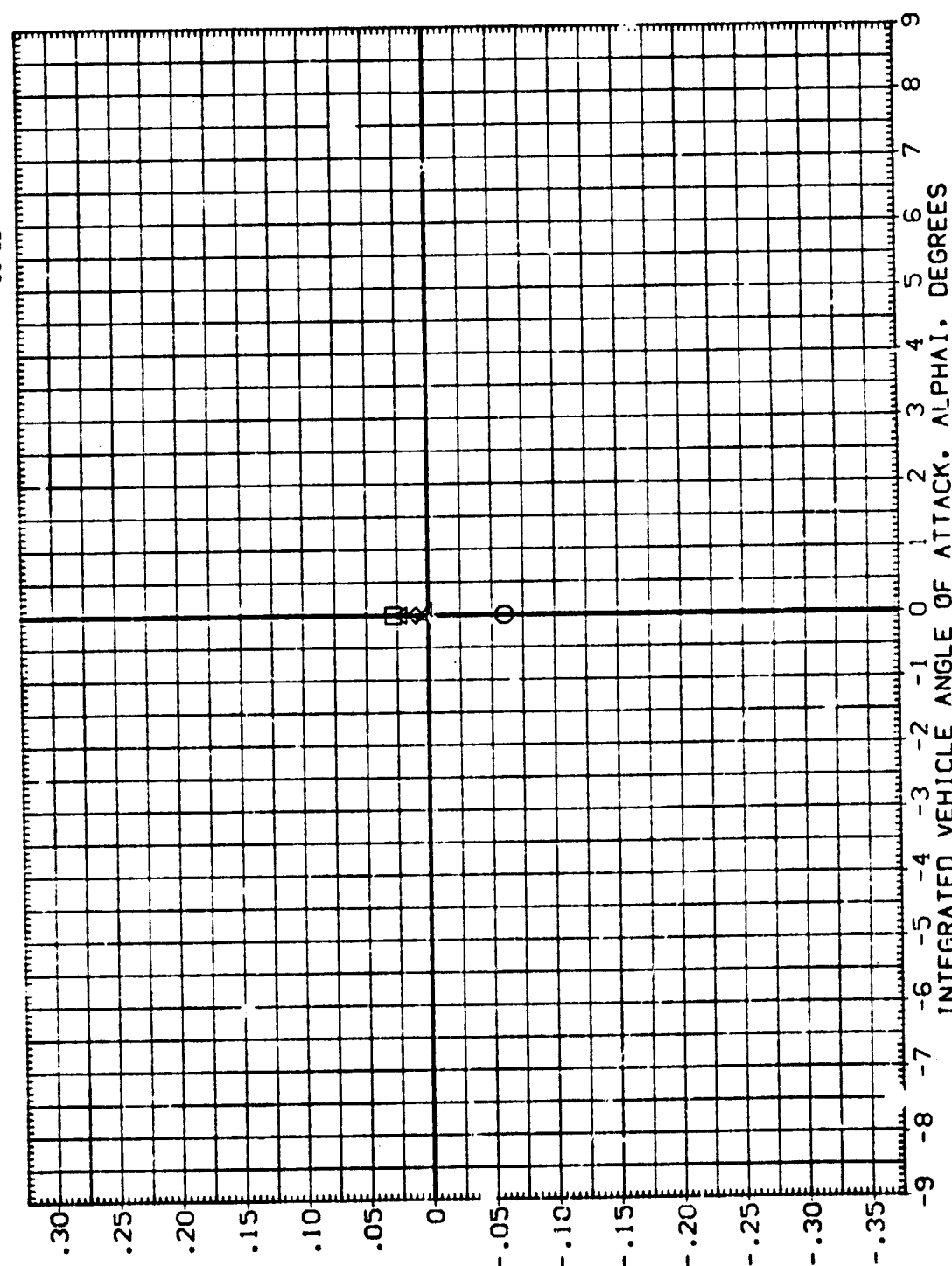


FIG. 7 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=10/-4

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(MET046)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	0.000	-4.000	1.550	.000	SREF 2590.0000 SO.FT.
(MET146)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	0.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(MET146)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	1.550	.000	BREF 976.0000 IN. XT
(MET146)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	10.000	-4.000	1.550	.000	YMRP .0000 IN. YT
(MET146)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	10.000	-4.000	1.550	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

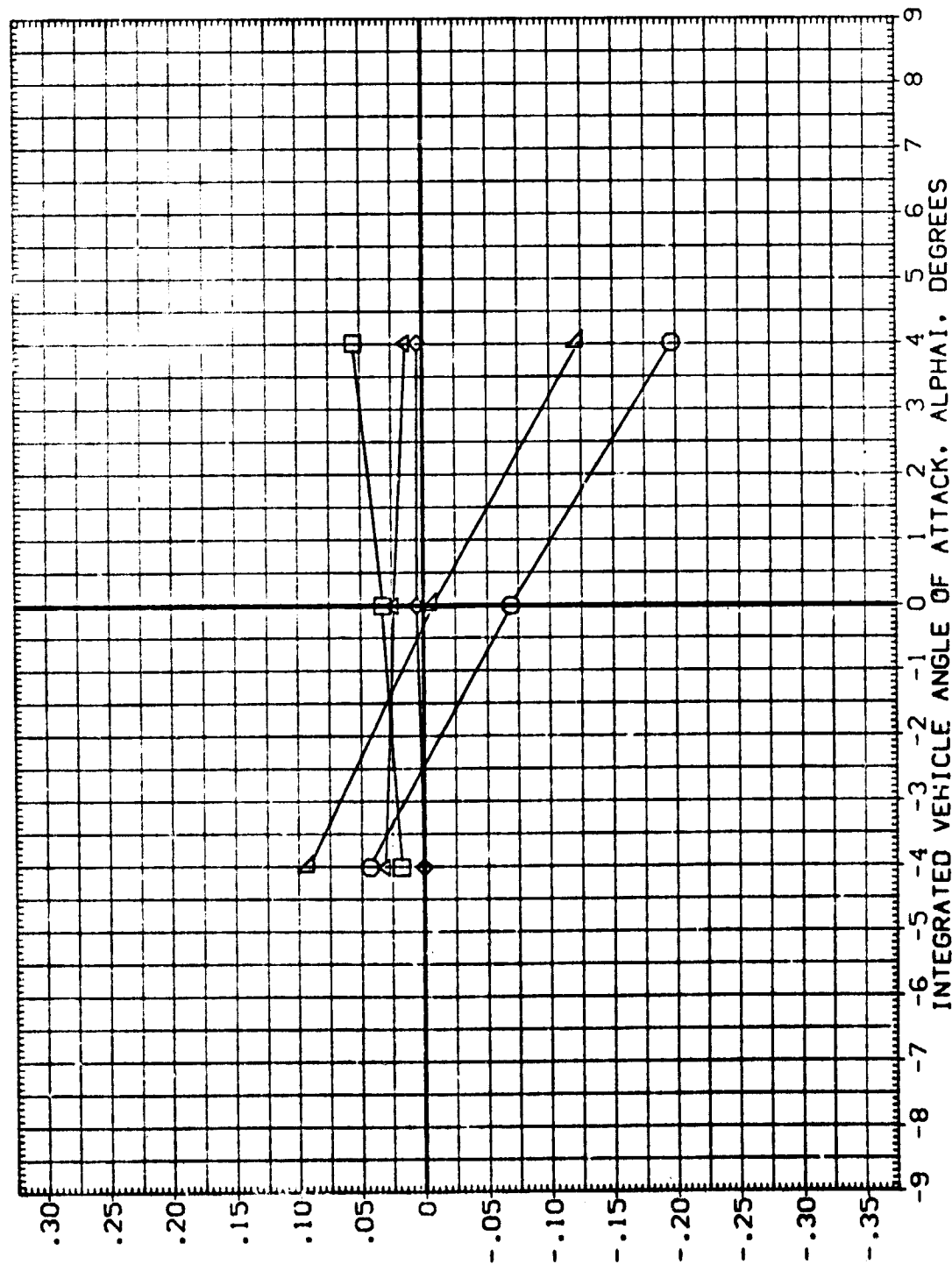


FIG. 7 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=10/-4

(F)BET.1 = 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(MET046)	AMES97-019(IAB1) LVAP CRBITER-ALL HL SEALED	10.000	-4.000	1.550	.000	SREF 2590.0000 SQ.FT.
(MET146)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(MET146)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(MET146)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	10.000	-4.000	1.550	.000	XHRP 976.0000 IN. XT
(MET146)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	10.000	-4.000	1.550	.000	YHRP 400.0000 IN. YT
						ZHRP 400.0000 IN. ZT
						SCALE .0300

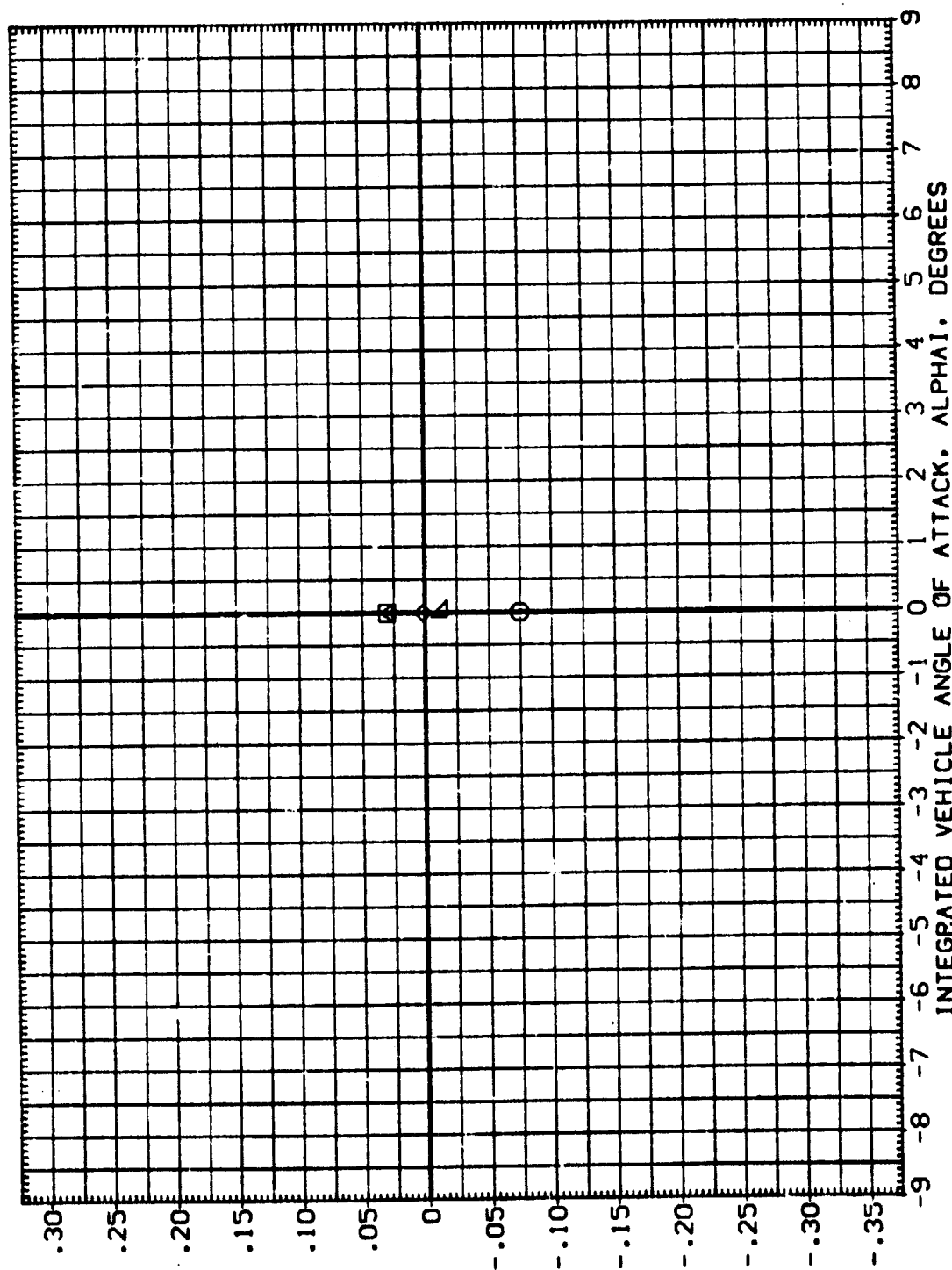


FIG. 7 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=10/-4

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(MET046)	APES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	10.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(MET146)	APES97-019(IAB1) LVAP TANK - ALL HL SEALED	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(MET146)	APES97-019(IAB1) LVAP L-SHG - ALL HL SEALED	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(MET146)	APES97-019(IAB1) LVAP R-LRB ALL HL SEALED	10.000	-4.000	1.550	.000	XMRP 976.0000 IN. XT
(MET146)	APES97-019(IAB1) LVAP INT VEH ALL HL SEALED	10.000	-4.000	1.550	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

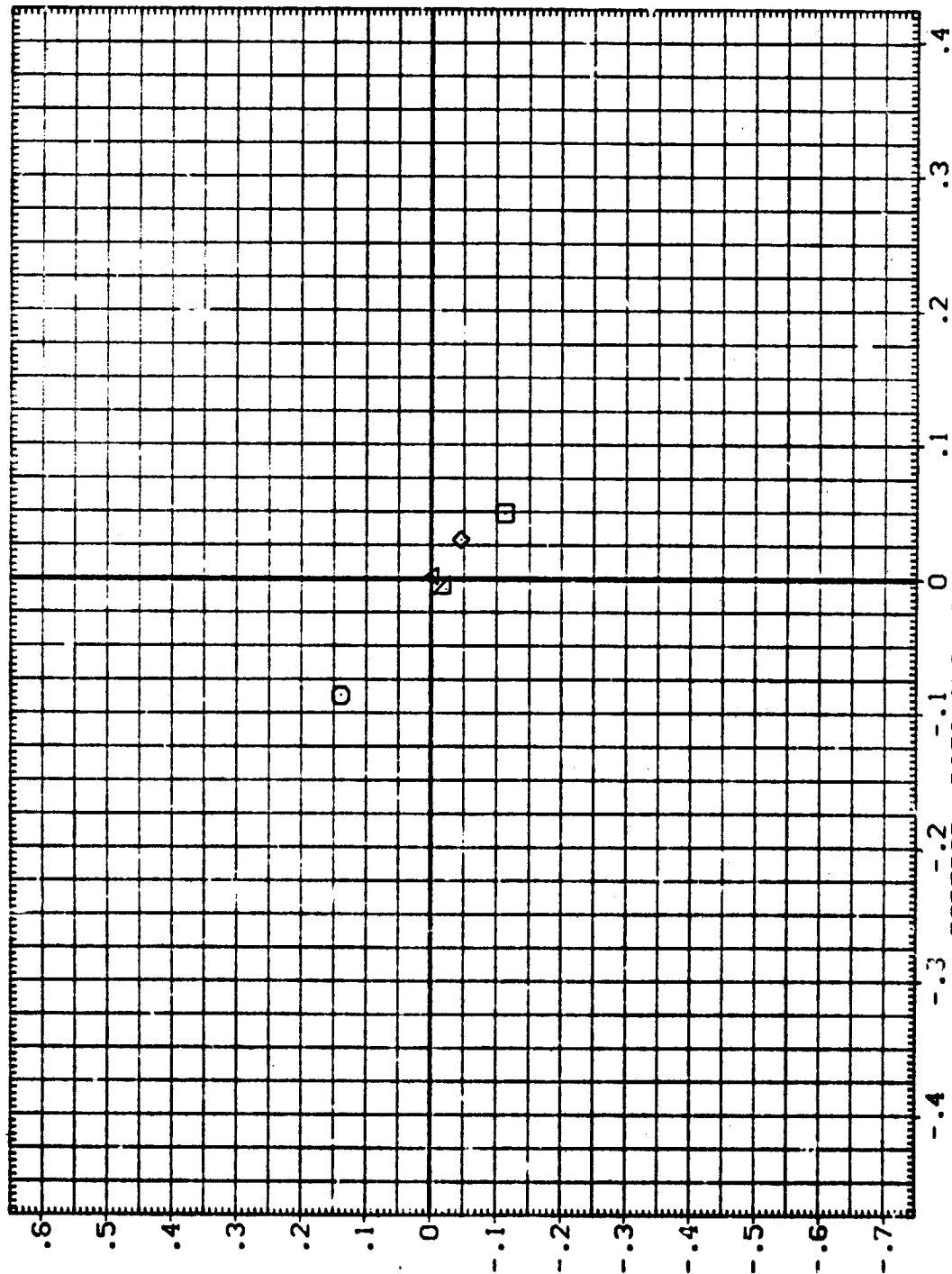


FIG. 7 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=10/-4

(A)BET.1 = -6.00

REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(MET046)	AME597-019(IAB1) LVAP	10.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(MET146)	AME597-019(IAB1) LVAP	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(METL46)	AME597-019(IAB1) LVAP	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(METR46)	AME597-019(IAB1) LVAP	10.000	-4.000	1.550	.000	XMRP 976.0000 IN.
(MET146)	AME597-019(IAB1) LVAP	10.000	-4.000	1.550	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

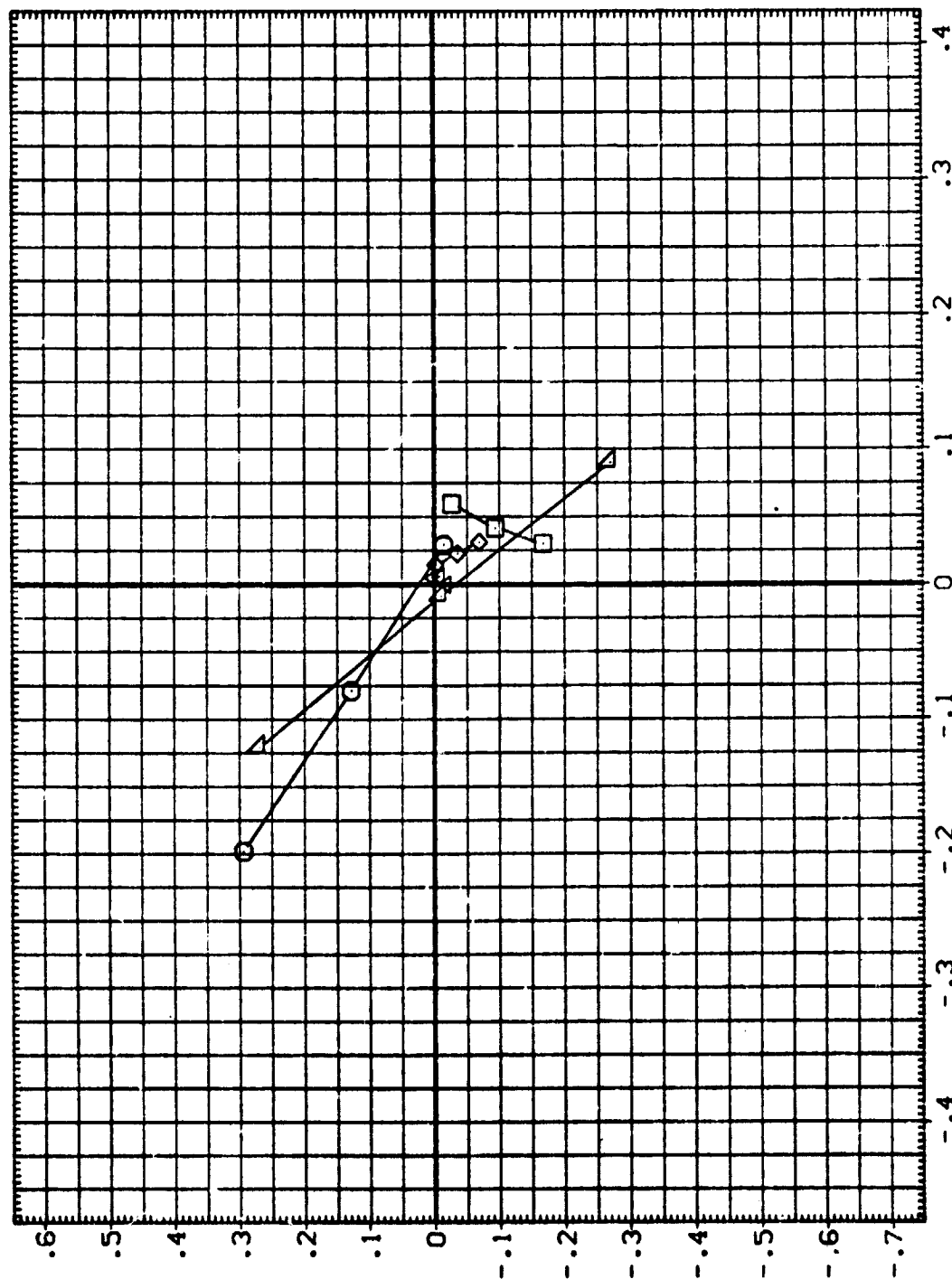


FIG. 7 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=10/-4

(B)BET.1 = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPOBRK	REFERENCE INFORMATION
(MET048)	AMES97-019(IAB1) LVAP ORBITTER-ALL HL SEALED	10.000	-4.000	1.550	.000	SREF 2690.0000 SO.FT.
(MET146)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(MET146)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(MET146)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	10.000	-4.000	1.550	.000	XMRP 976.0000 IN. XT
(MET146)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	10.000	-4.000	1.550	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

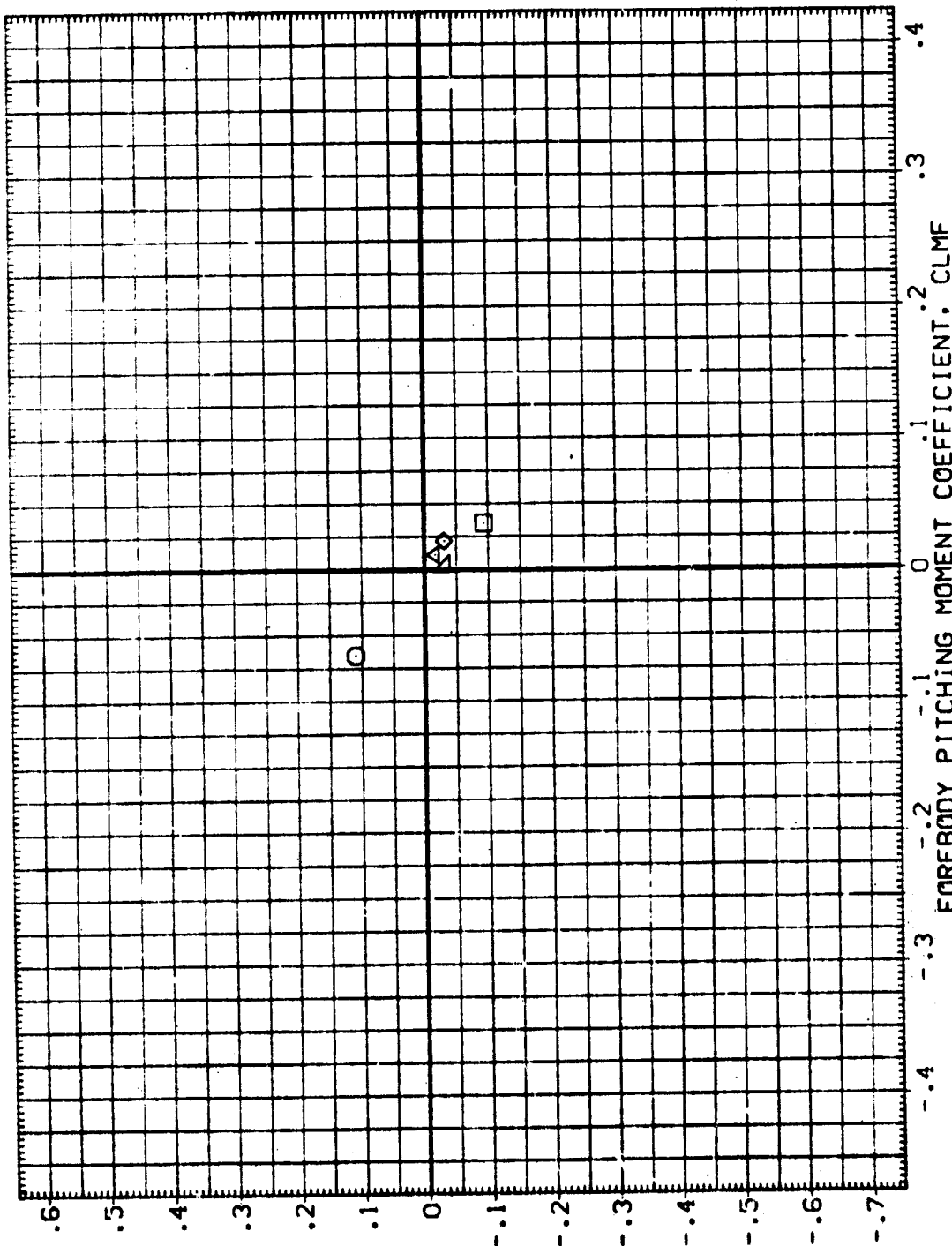


FIG. 7 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=10/-4

(C)BET.1 = -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(MET046)	APES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	10.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(MET146)	APES97-019(IAB1) LVAP TANK - ALL HL SEALED	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(MET146)	APES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(MET146)	APES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	10.000	-4.000	1.550	.000	XMRP 976.0000 IN. XT
(MET146)	APES97-019(IAB1) LVAP INT VEH ALL HL SEALED	10.000	-4.000	1.550	.000	YMRP 400.0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

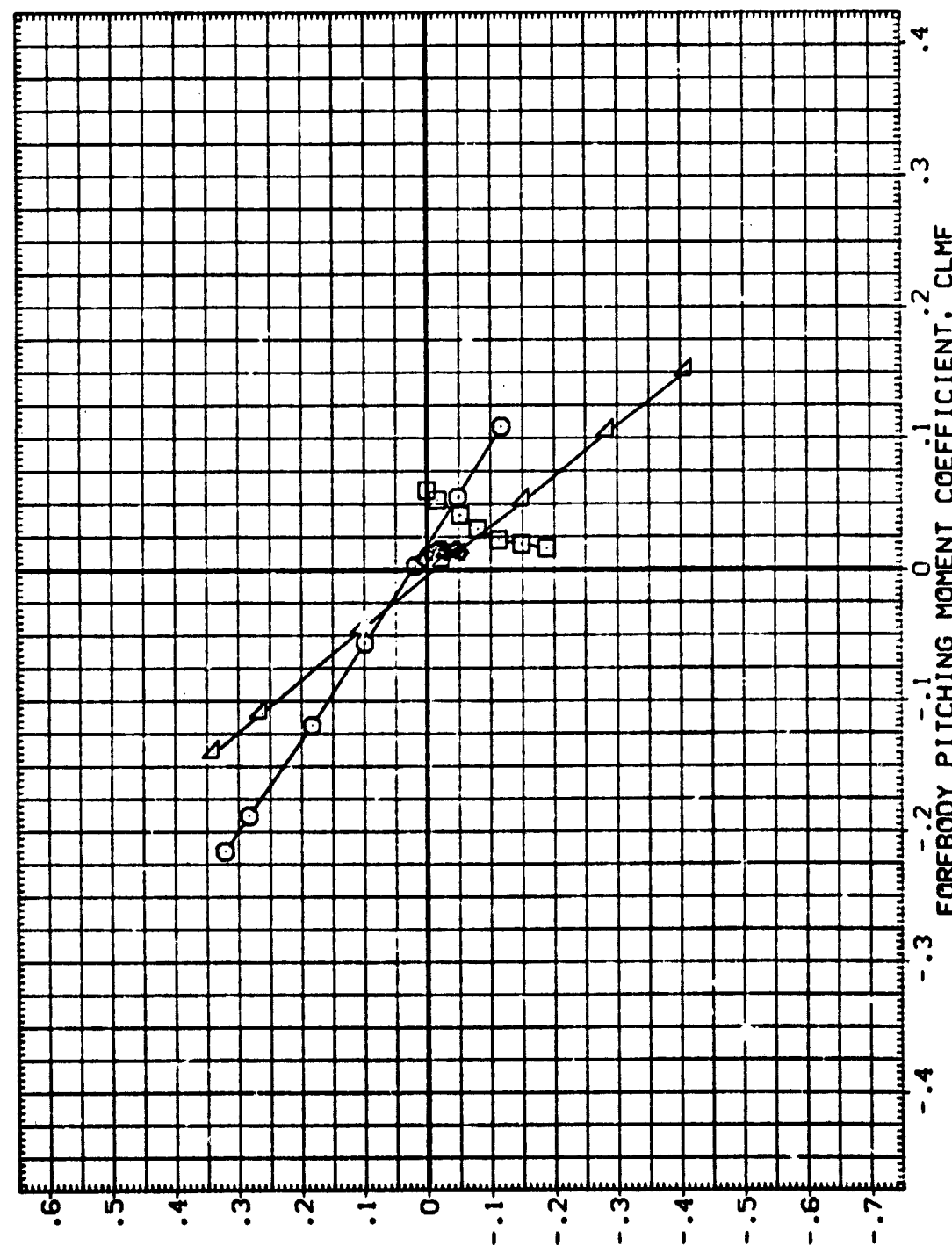


FIG. 7 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=10/-4

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(MET146)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	10.000	-4.000	1.550	.000	SREF 2690.0000 SO.FT.
(MET146)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(MET146)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(MET146)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	10.000	-4.000	1.550	.000	XMRP 976.0000 IN. XT
(MET146)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	10.000	-4.000	1.550	.000	YMRP 400.0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

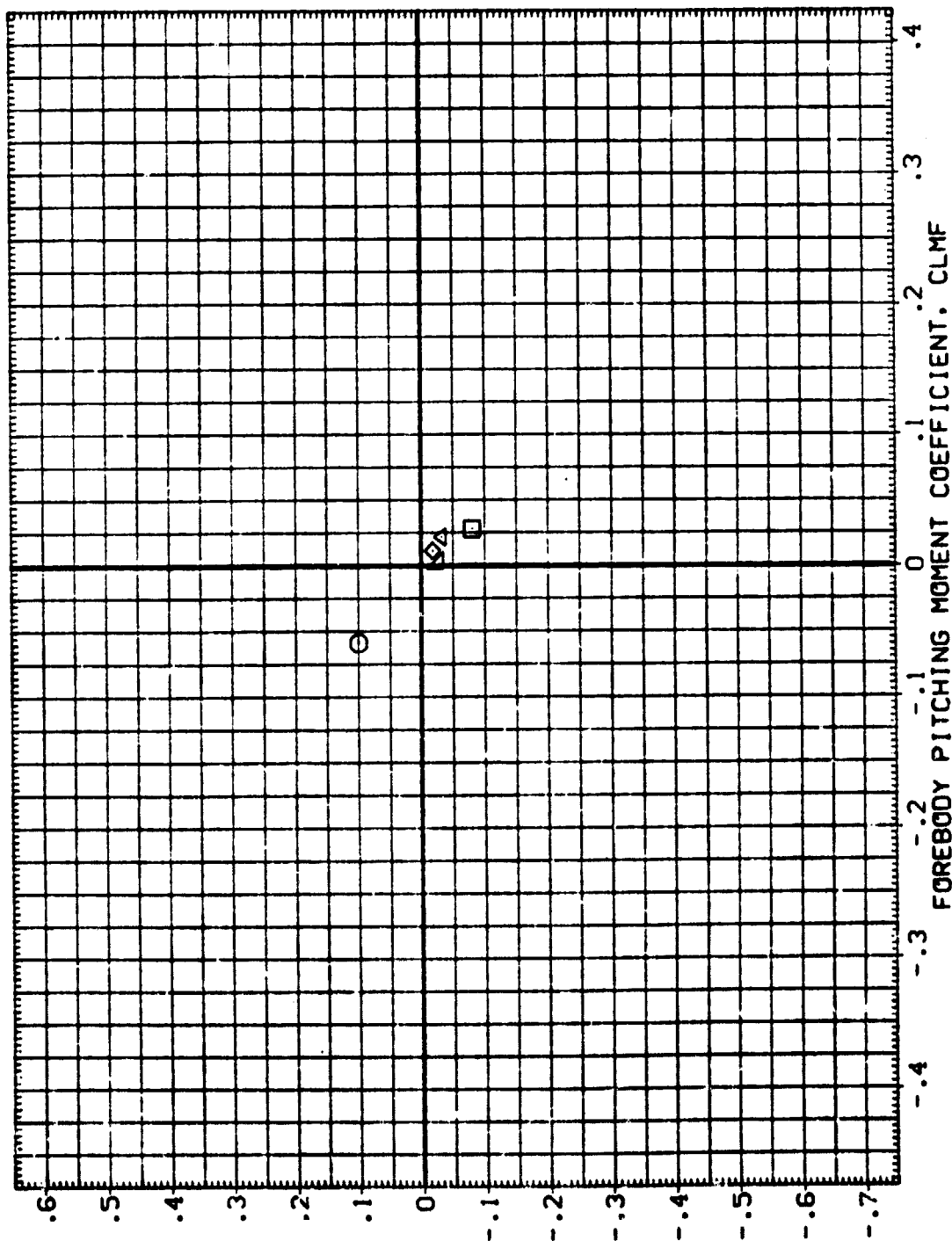


FIG. 7 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=10/-4

(E)RET.1 = 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION			
(MET046)	AME597-019(IAB1) LVAP ORB:TER-ALL HL SEALED	10.000	-4.000	1.550	.000	SREF	2690.0000	SO.FT.	
(MET146)	AME597-019(IAB1) LVAP TANK - ALL HL SEALED	10.000	-4.000	1.550	.000	LREF	1297.0000	IN.	
(METL46)	AME597-019(IAB1) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	1.550	.000	BREF	1297.0000	IN.	XT
(METR46)	AME597-019(IAB1) LVAP R-LRB - ALL HL SEALED	10.000	-4.000	1.550	.000	XMRP	976.0000	IN.	YT
(METI46)	AME597-019(IAB1) LVAP INT VEH ALL HL SEALED	10.000	-4.000	1.550	.000	ZMRP	400.0000	IN.	ZT
						SCALE	.0300		

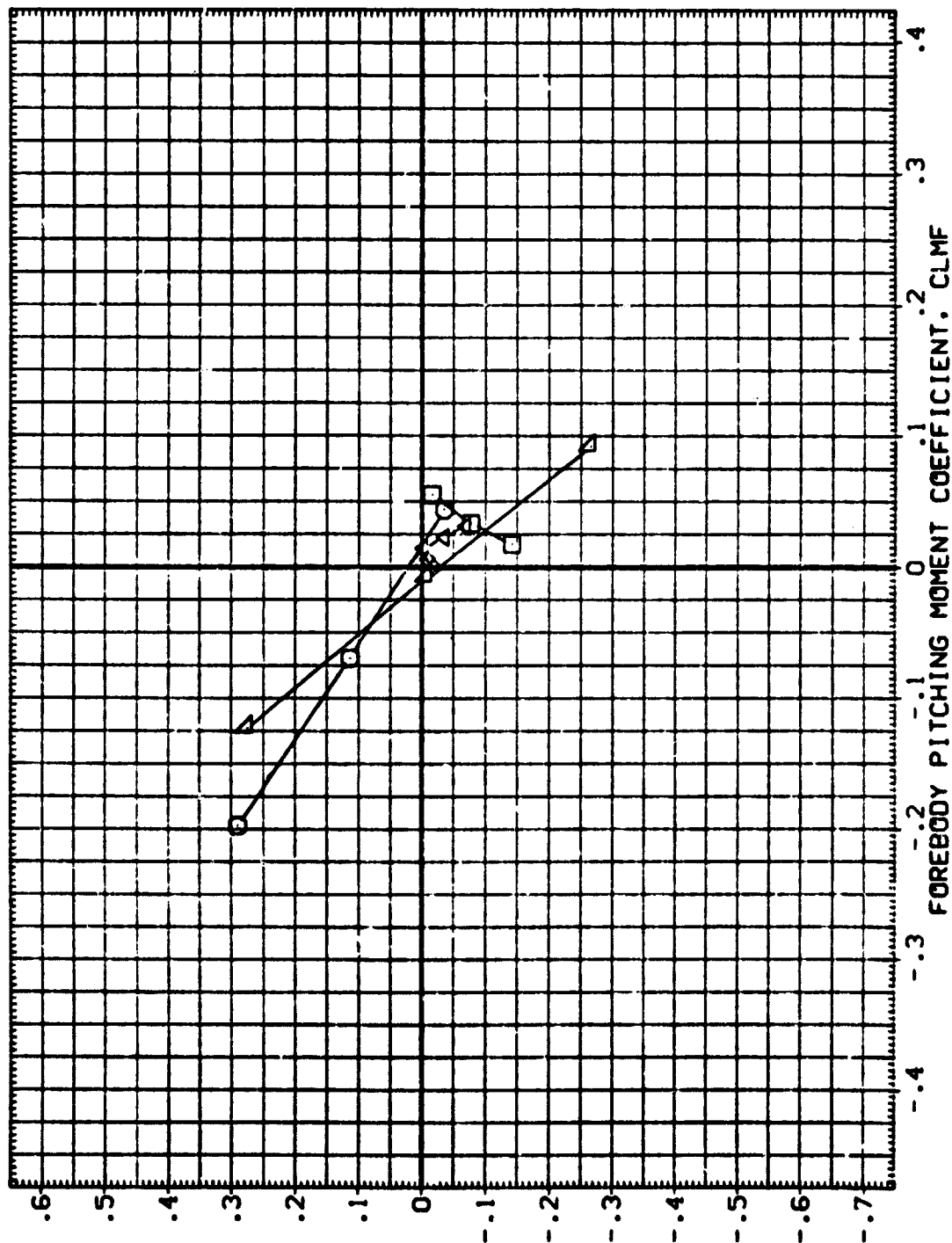


FIG. 7 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=10/-4

(FB)BET = 4.00

DATA SET SYMBOLS: (MET045), (MET046), (MET047), (MET048), (MET049), (MET050)

CONFIGURATION DESCRIPTION: ARES97-C19C(AB1) LVAP ORBITER-ALL ML SEALED, ARES97-O19C(AB1) LVAP TANK - ALL ML SEALED, ARES97-O19C(AB1) LVAP L-SRB - ALL ML SEALED, ARES97-O19C(AB1) LVAP R-LRB - ALL ML SEALED, ARES97-O19C(AB1) LVAP INT VEH ALL ML SEALED

ELV-18: 10.000, 10.000, 10.000, 10.000, 10.000, 10.000

ELV-08: -4.000, -4.000, -4.000, -4.000, -4.000, -4.000

MACH: 1.550, 1.550, 1.550, 1.550, 1.550, 1.550

SPDBRK: .000, .000, .000, .000, .000, .000

REFERENCE INFORMATION: SREF 2690.0000 SO.FT. IN., LREF 1297.0000 IN., BREF 1297.0000 IN., XMRP 976.0000 IN., YMRP 400.0000 IN., ZMRP 400.0000 IN., SCALE .0300

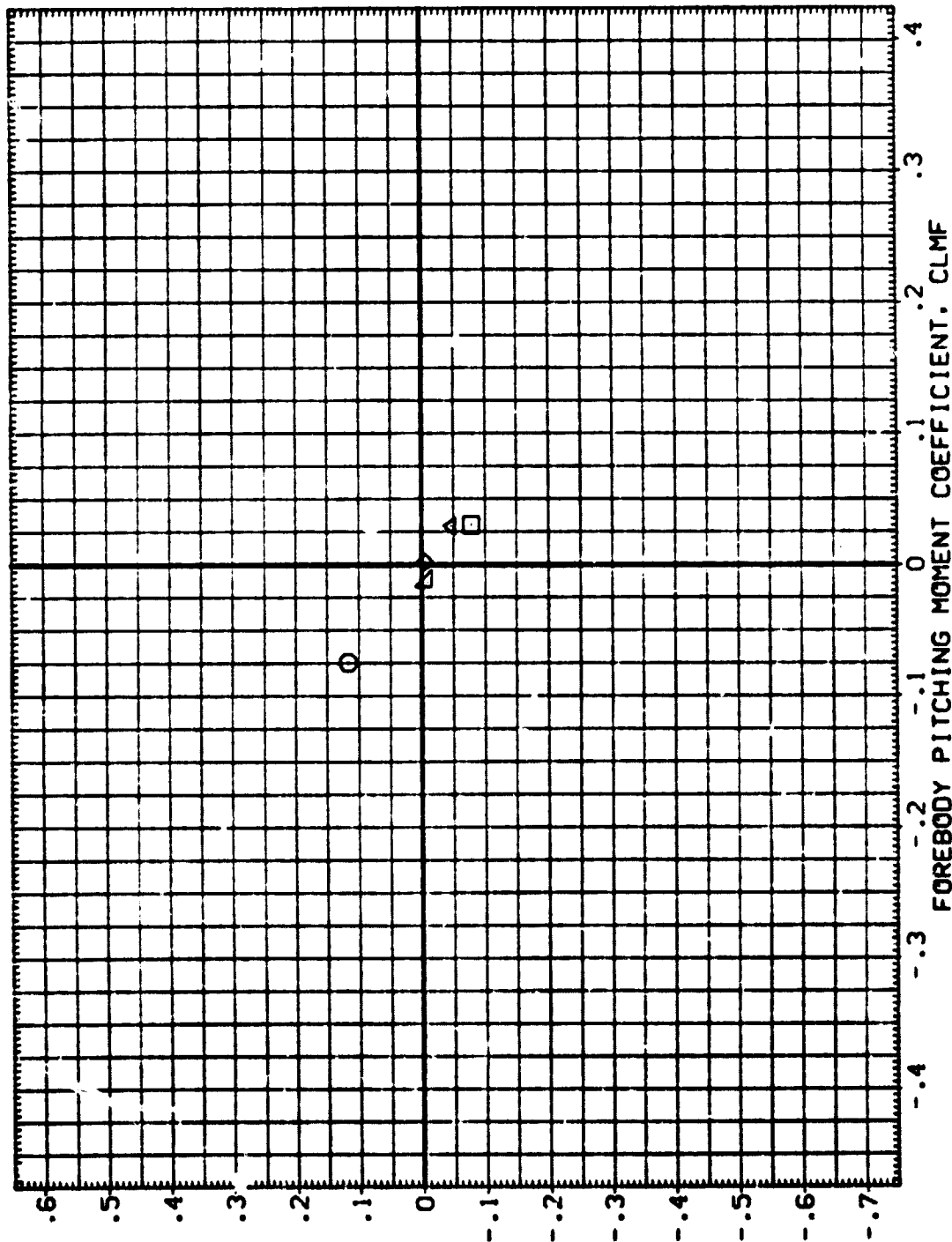


FIG. 7 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=10/-4

(G)BET.1 = 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(MET03)	AMES97-019C(AB1) LVAP	8.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET13)	AMES97-019C(AB1) LVAP	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(MET13)	AMES97-019C(AB1) LVAP	8.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(MET13)	AMES97-019C(AB1) LVAP	8.000	-4.000	2.000	.000	YMRP 576.0000 IN. XT
(MET13)	AMES97-019C(AB1) LVAP	8.000	-4.000	2.000	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

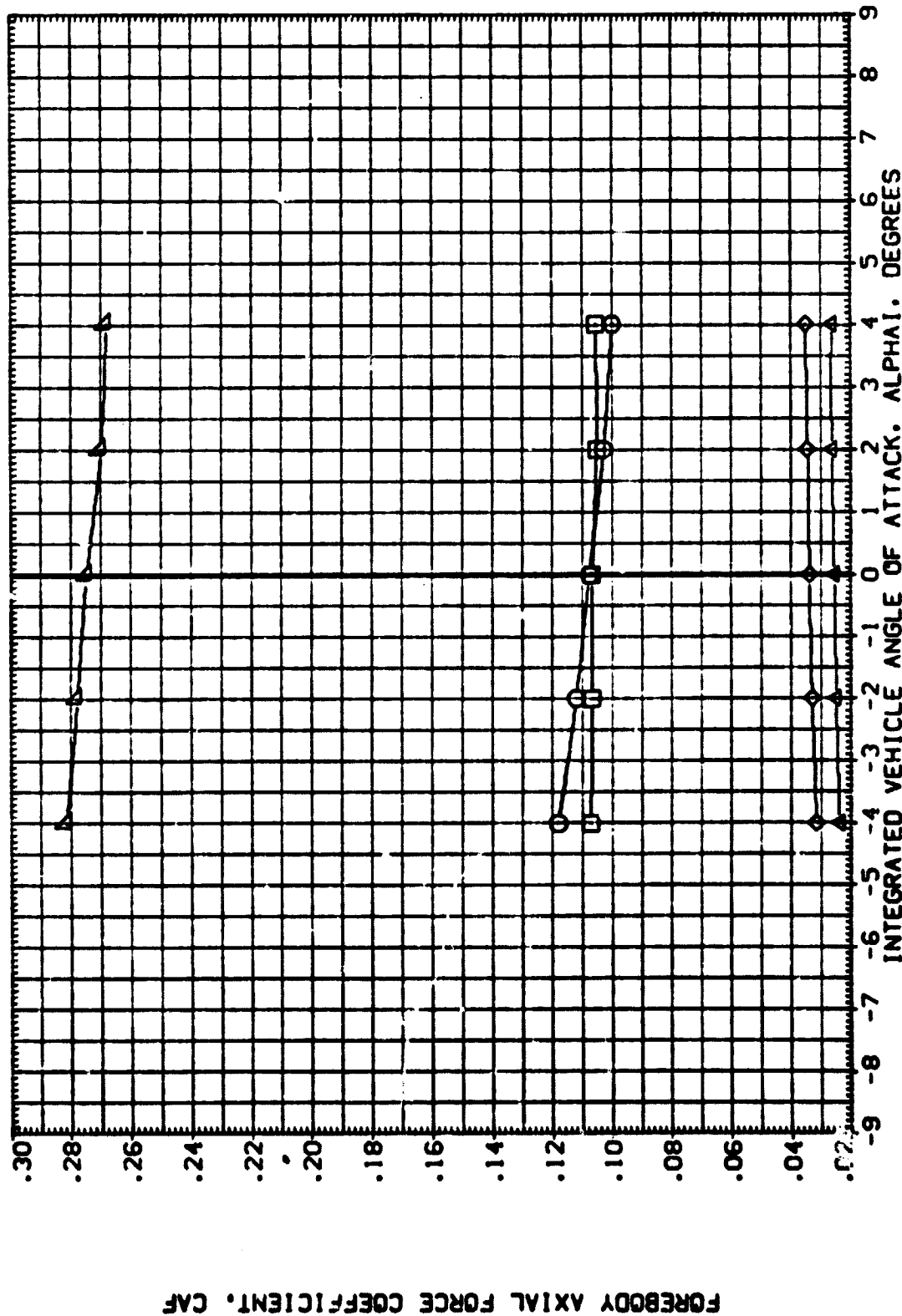


FIG. 8 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4

(A) BET 1 = -6.00

DATA SET SYMBOL CONFIGURATION: DESCRIPTION REFERENCE INFORMATION

DATA SET SYMBOL	CONFIGURATION: DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(MET176)	ANE597-019(1A81) LVAP ORBITER-ALL M SEALED	8.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET176)	ANE597-019(1A81) LVAP TANK - ALL M SEALED	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(MET176)	ANE597-019(1A81) LVAP L-SRB - ALL M SEALED	8.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(MET176)	ANE597-019(1A81) LVAP R-LRB - ALL M SEALED	8.000	-4.000	2.000	.000	YMRP 576.0000 IN. YI
(MET176)	ANE597-019(1A81) LVAP INT VEH ALL M SEALED	8.000	-4.000	2.000	.000	ZMRP 400.0000 IN. ZI
						SCALE .0300

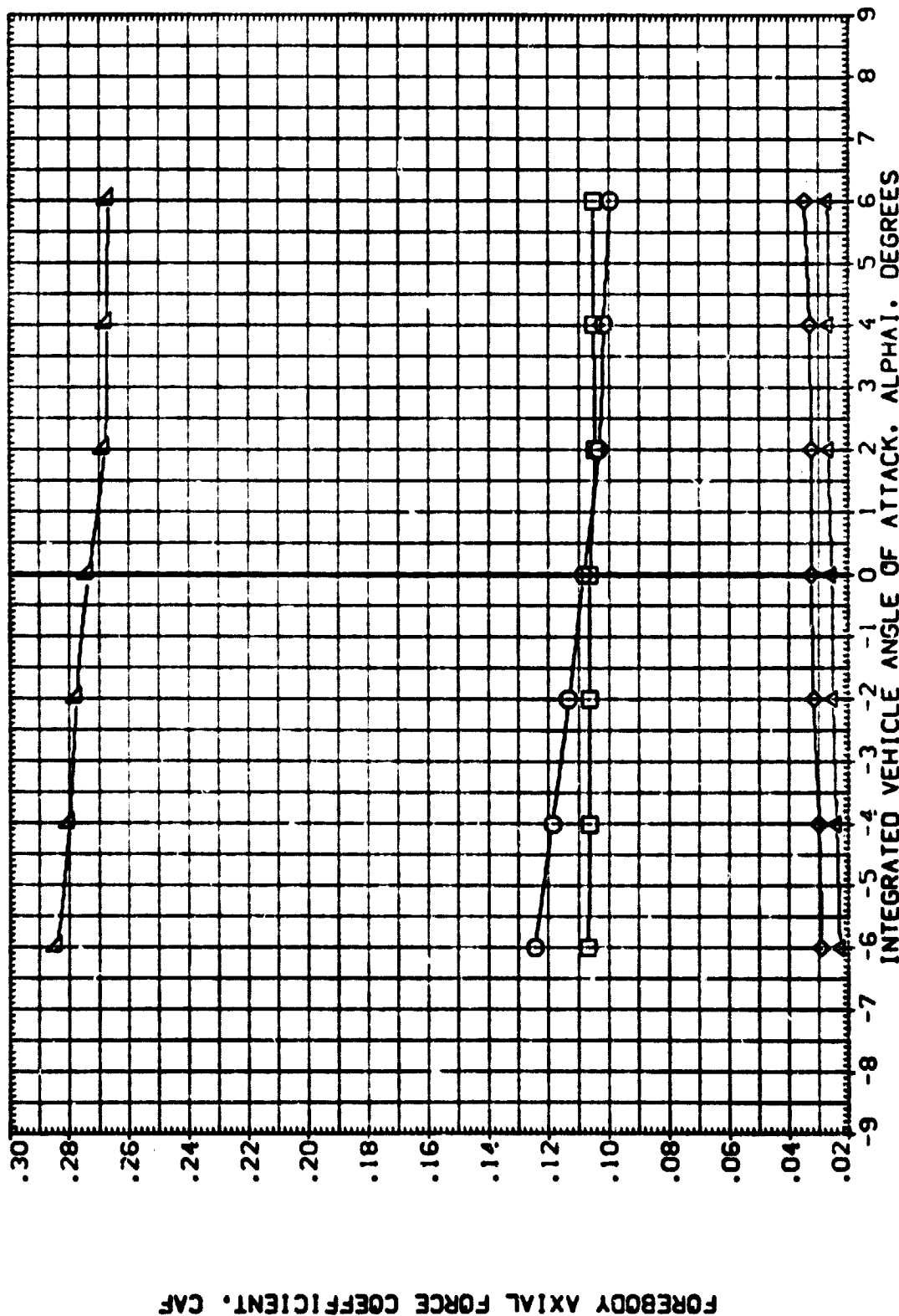


FIG. 8 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4

(B) BET. I = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(MET103)	AMES97-019(1A1) LVAP ORBITER-ALL ML SEALED	8.000	-4.000	2.000	.000	SREF 2690.0000 SO.FT.
(MET113)	AMES97-019(1A1) LVAP TANK - ALL ML SEALED	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(MET123)	AMES97-019(1A1) LVAP L-SRB - ALL ML SEALED	8.000	-4.000	2.000	.000	SREF 1297.0000 IN.
(MET133)	AMES97-019(1A1) LVAP R-LRB ALL ML SEALED	8.000	-4.000	2.000	.000	VMRP 976.0000 IN. XT
(MET143)	AMES97-019(1A1) LVAP INT VEN ALL ML SEALED	8.000	-4.000	2.000	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

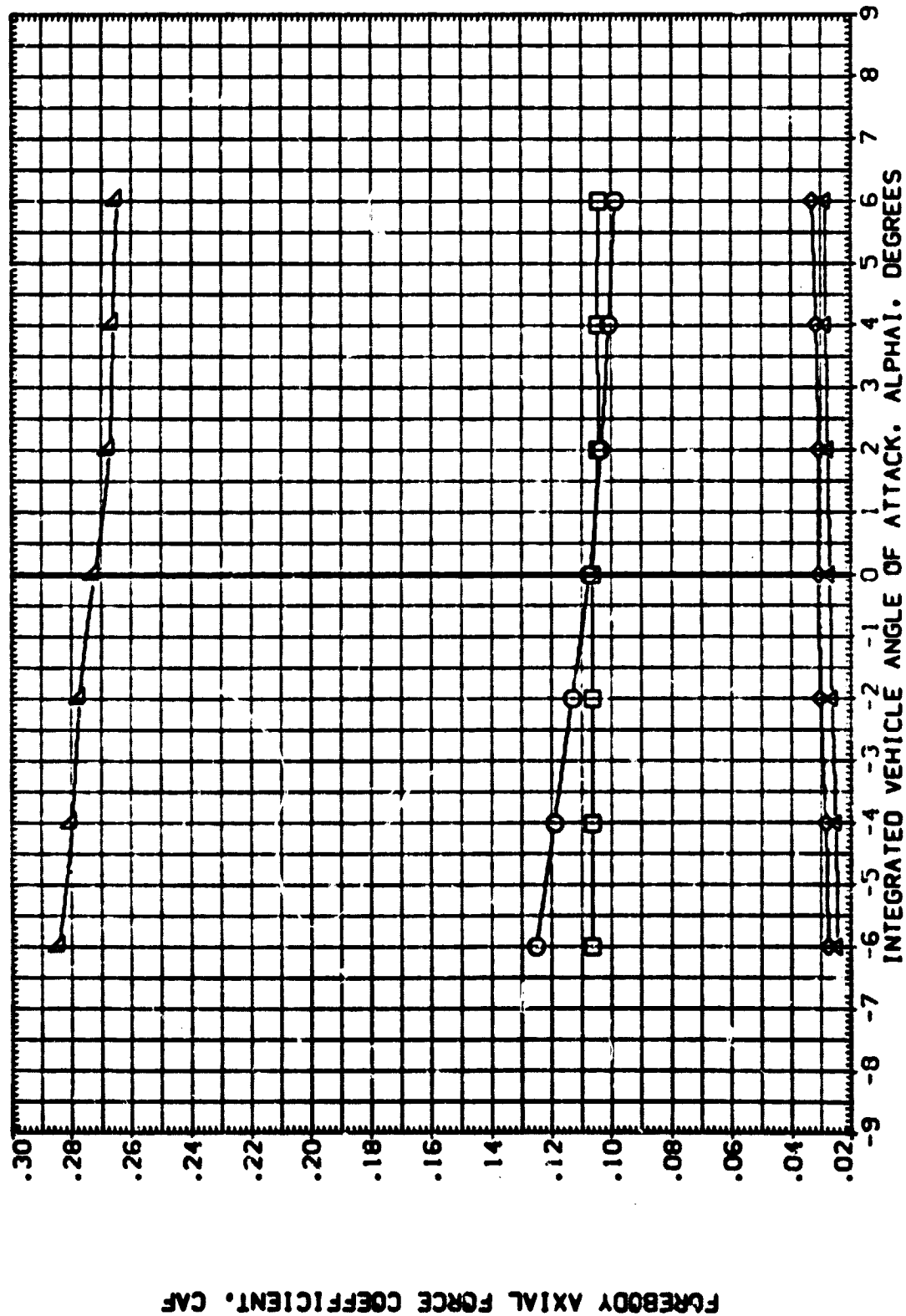


FIG. 8 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4

(C)BET.1 = -2.00

FOREBODY AXIAL FORCE COEFFICIENT, C_{AF}

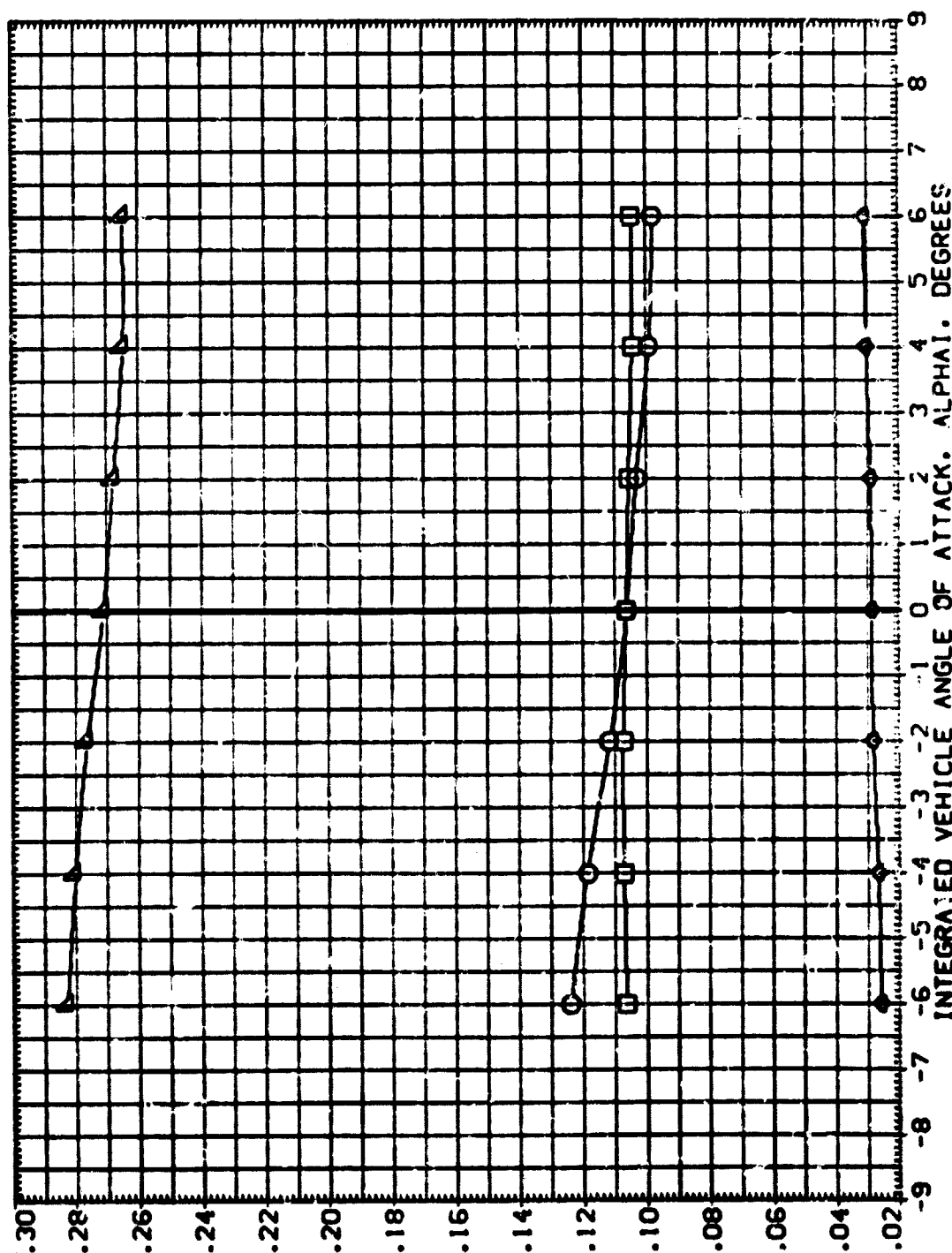


FIG. 8 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=2.0$ $DEV=8/-4$

COBET, I = .00

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-CB	MACH	SPOBRK	REFERENCE INFORMATION
(MET036)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.000	.000	SREF 2690.0000 SO.FT.
(MET136)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(MET136)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(MET136)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.000	.000	XMRP 976.0000 IN.
(MET136)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.000	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

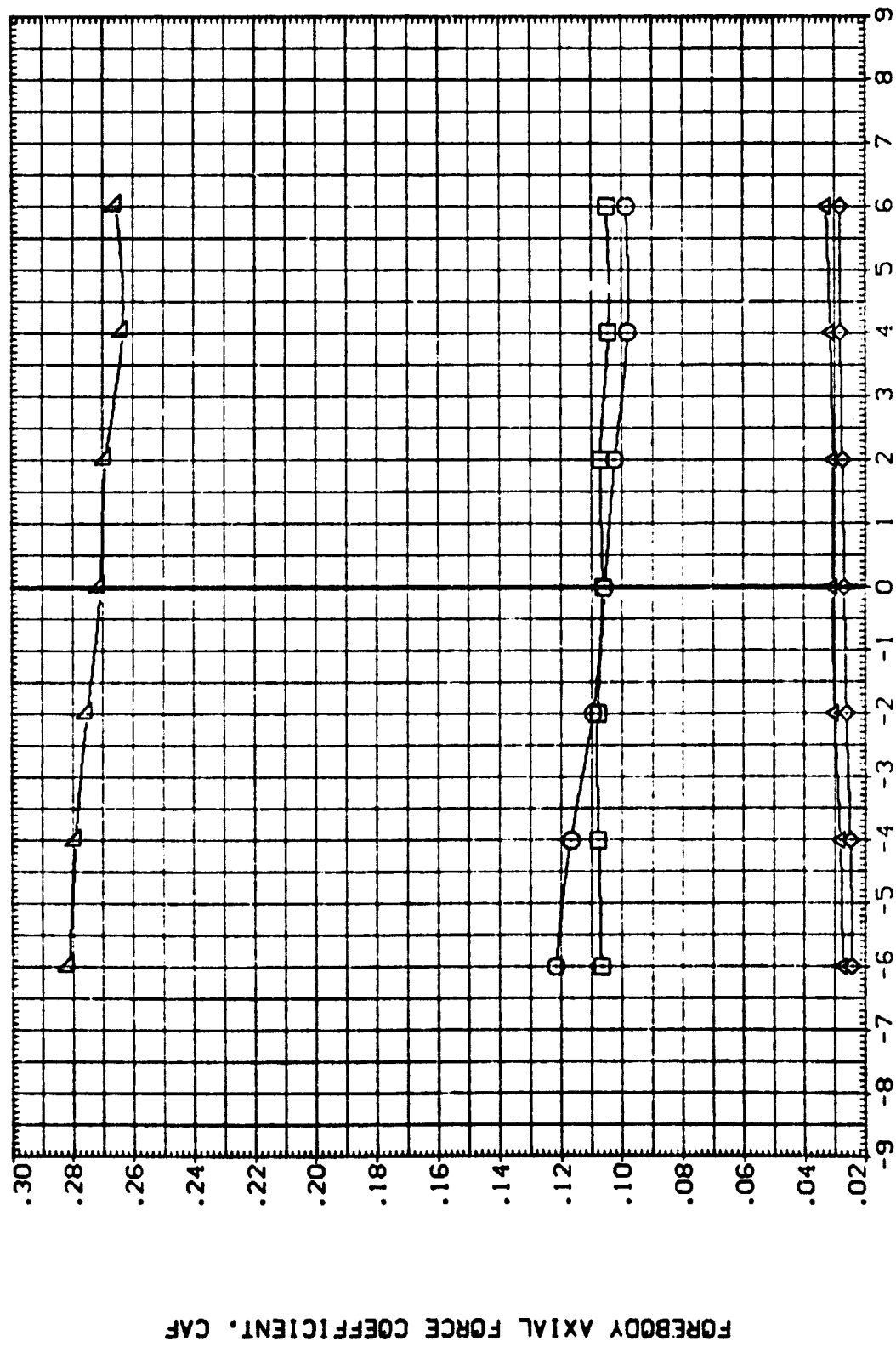


FIG. 8 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4

DATA SET SYMBOL CONFIGURATION DESCRIPTION

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(MET036)	AMES97-019(IAB1) LVAP ORBITTER-ALL ML SEALED	8.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET136)	AMES97-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(MET136)	AMES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	8.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(MET136)	AMES97-019(IAB1) LVAP R-LRB - ALL ML SEALED	8.000	-4.000	2.000	.000	XMRP 976.0000 IN.
(MET136)	AMES97-019(IAB1) LVAP INT VEH ALL ML SEALED	8.000	-4.000	2.000	.000	YMRP .0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

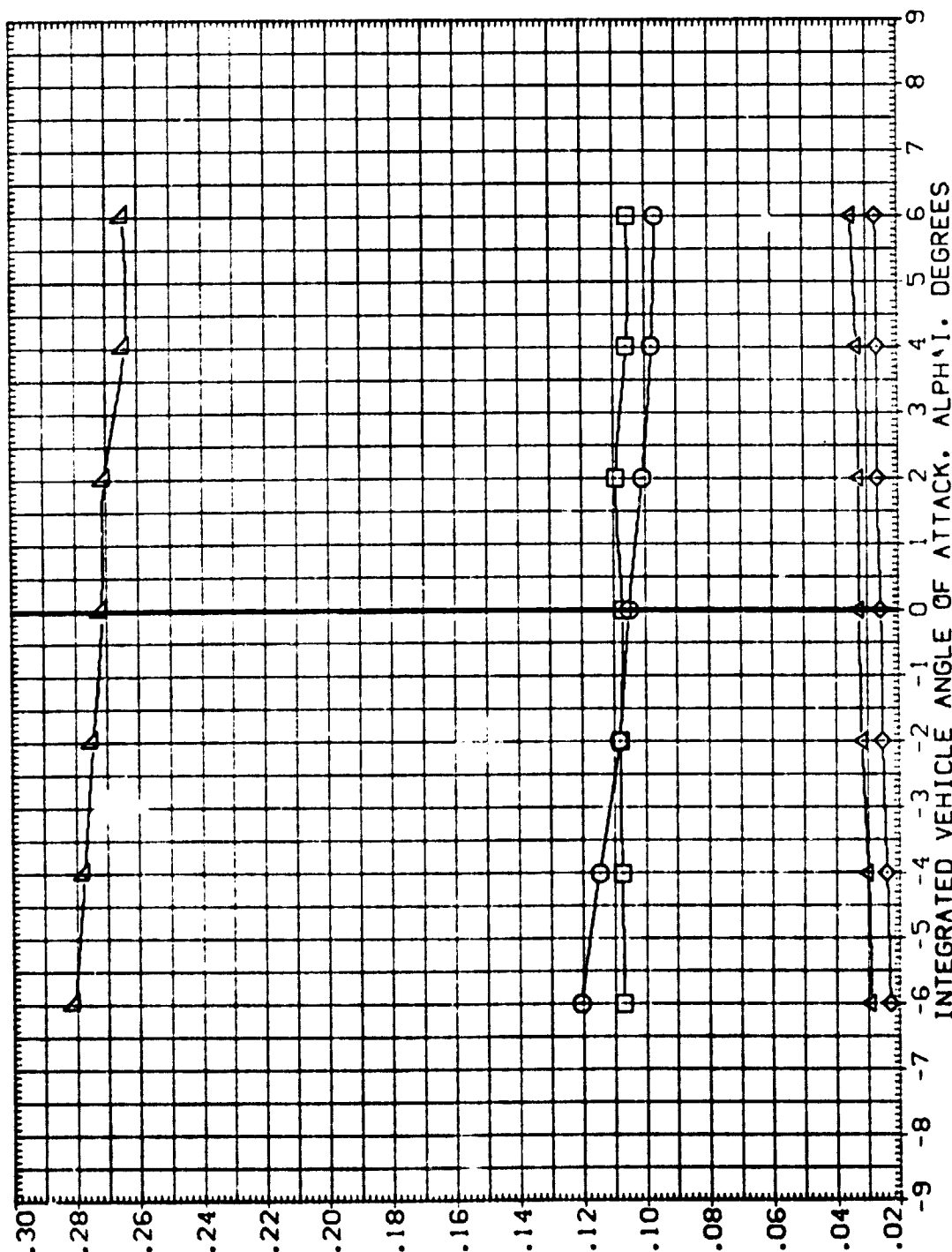
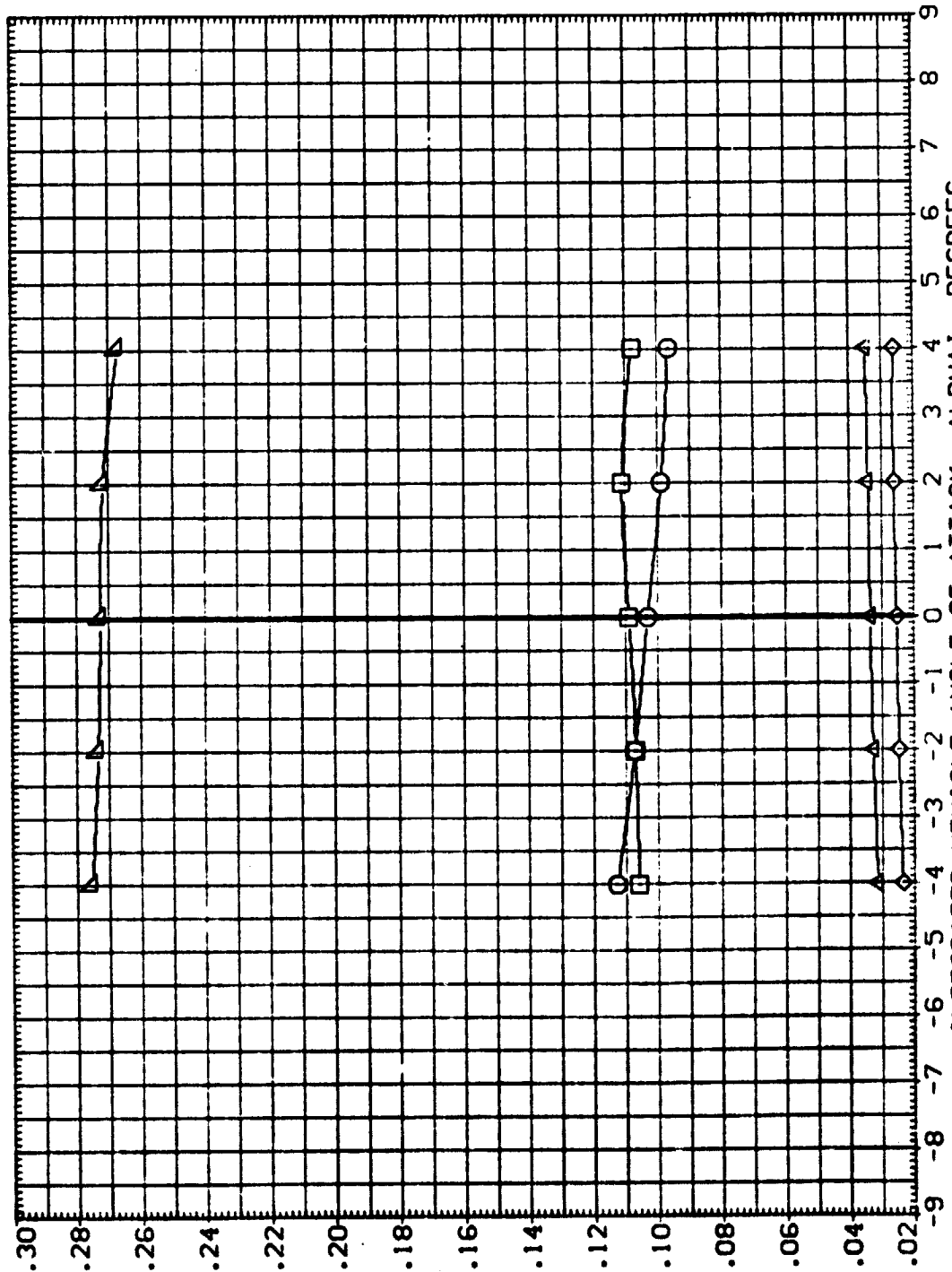


FIG. 8 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4

(F)BETAL = 4.00

REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDRN	REFERENCE INFORMATION
(MET036)	AME597-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET136)	AME597-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(MET136)	AME597-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(MET136)	AME597-019(IAB1) LVAP R-LRB ALL HL SEALED	8.000	-4.000	2.000	.000	XMRP 976.0000 IN.
(MET136)	AME597-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.000	.000	ZMRP 400.0000 IN.
						SCALE .0300



FOREBODY AXIAL FORCE COEFFICIENT, CAF

FIG. 8 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(MET036)	AMES97-019(1A81) LVAP ORBITTER-ALL M4 SEALED	8.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET1796)	AMES97-019(1A81) LVAP TANK - ALL M4 SEALED	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(MET1796)	AMES97-019(1A81) LVAP L-SRB - ALL M4 SEALED	8.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(MET1796)	AMES97-019(1A81) LVAP R-LRB ALL M4 SEALED	8.000	-4.000	2.000	.000	XMRP 976.0000 IN.
(MET1796)	AMES97-019(1A81) LVAP INT VEH ALL M4 SEALED	8.000	-4.000	2.000	.000	ZMRP 400.0000 IN.
						SCALE .0300

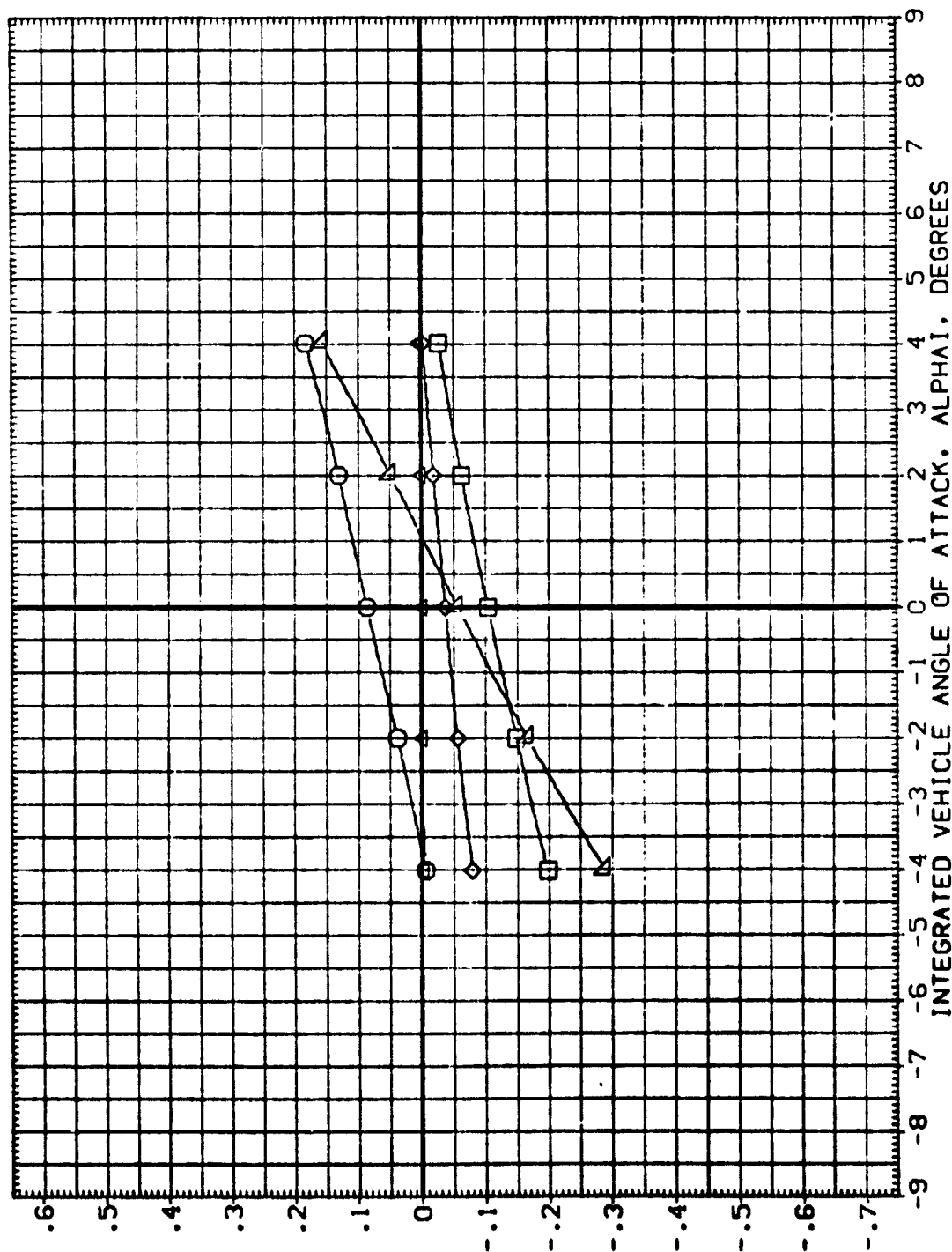


FIG. 8 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4

(ABET) = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(MET136)	AMES97-019(1A81) LVAP	8.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET136)	AMES97-019(1A81) LVAP	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(MET136)	AMES97-019(1A81) LVAP	8.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(MET136)	AMES97-019(1A81) LVAP	8.000	-4.000	2.000	.000	XMRP 976.0000 IN. XT
(MET136)	AMES97-019(1A81) LVAP	8.000	-4.000	2.000	.000	YMRP 400.0000 IN. YT
						SCALE .0300

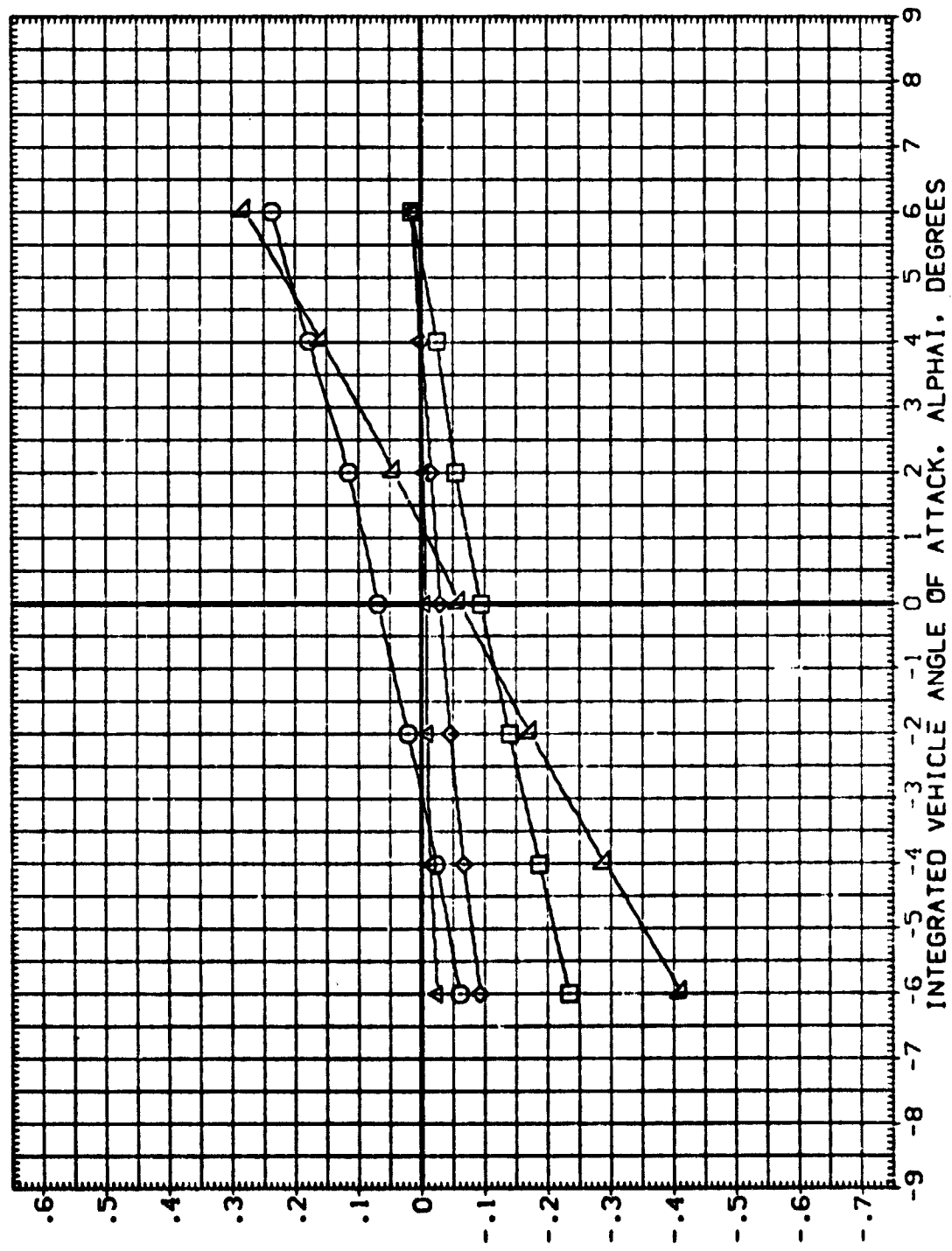


FIG. 8 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4

(B)BET.1 = -4.0C

DATA SET SYMBOL CONFIGURATION DESCRIPTION ELV-IB ELV-OB MACH SPDBRK REFERENCE INFORMATION

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDBRK	REFERENCE INFORMATION
(MET136)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.000	.000	SREF 2690.0000 SO.FT.
(MET136)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(MET136)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(MET136)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.000	.000	YMRP 976.0000 IN.
(MET136)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.000	.000	ZMRP 400.0000 IN.
						SCALE .0300

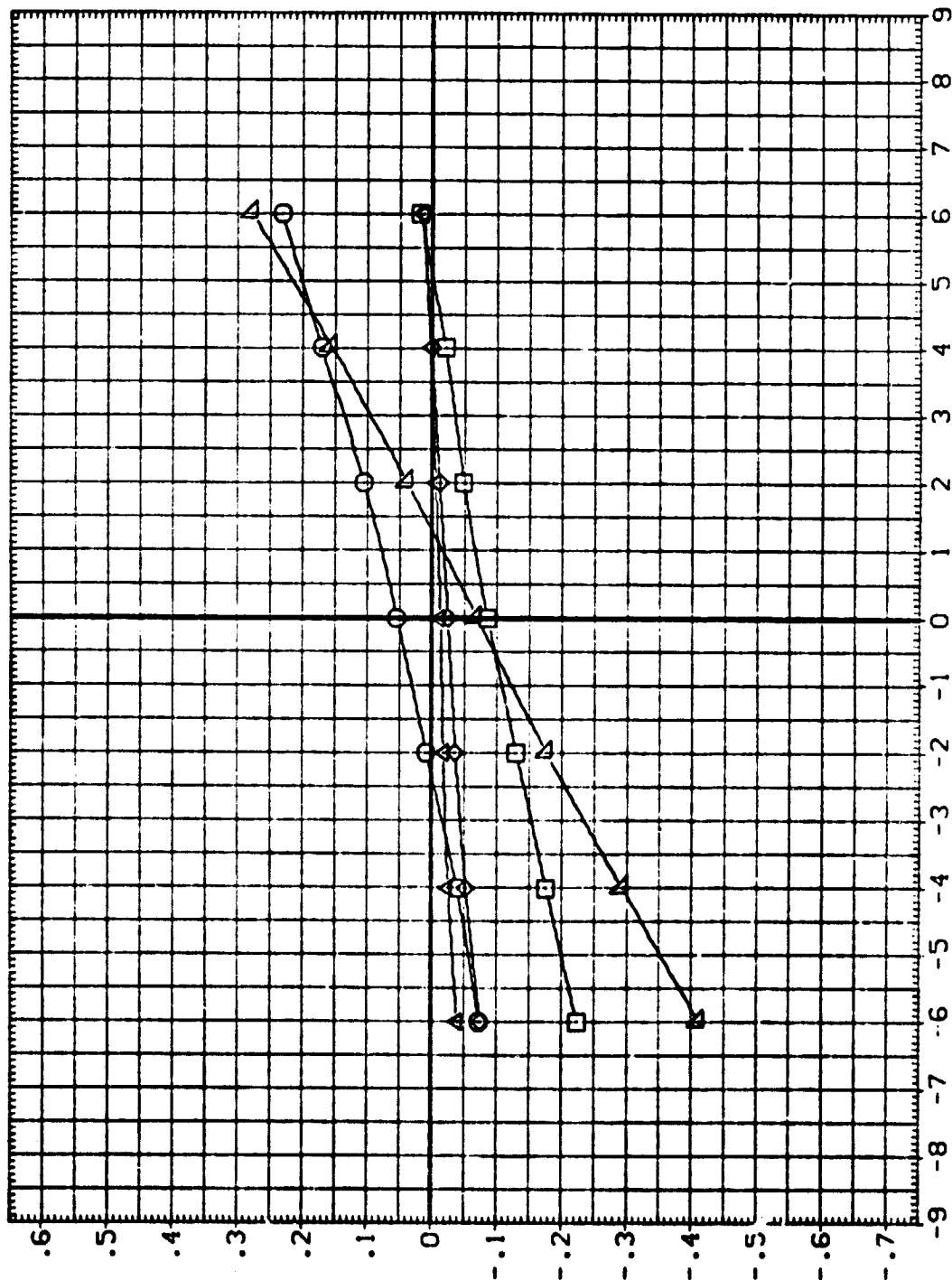


FIG. 8 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4

(C)BET.I = -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDGRK	REFERENCE INFORMATION
(MET036)	AMES97-019(IAB1) LVAP ORBITTER-ALL ML SEALED	8.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET136)	AMES97-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	-4.000	2.000	.000	LREF 1237.0000 IN.
(MET136)	AMES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	8.000	-4.000	2.000	.000	BREF 1237.0000 IN.
(MET136)	AMES97-019(IAB1) LVAP R-LRB - ALL ML SEALED	8.000	-4.000	2.000	.000	XMRP 976.0000 IN.
(MET136)	AMES97-019(IAB1) LVAP INT VEH ALL ML SEALED	8.000	-4.000	2.000	.000	YMRP .0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

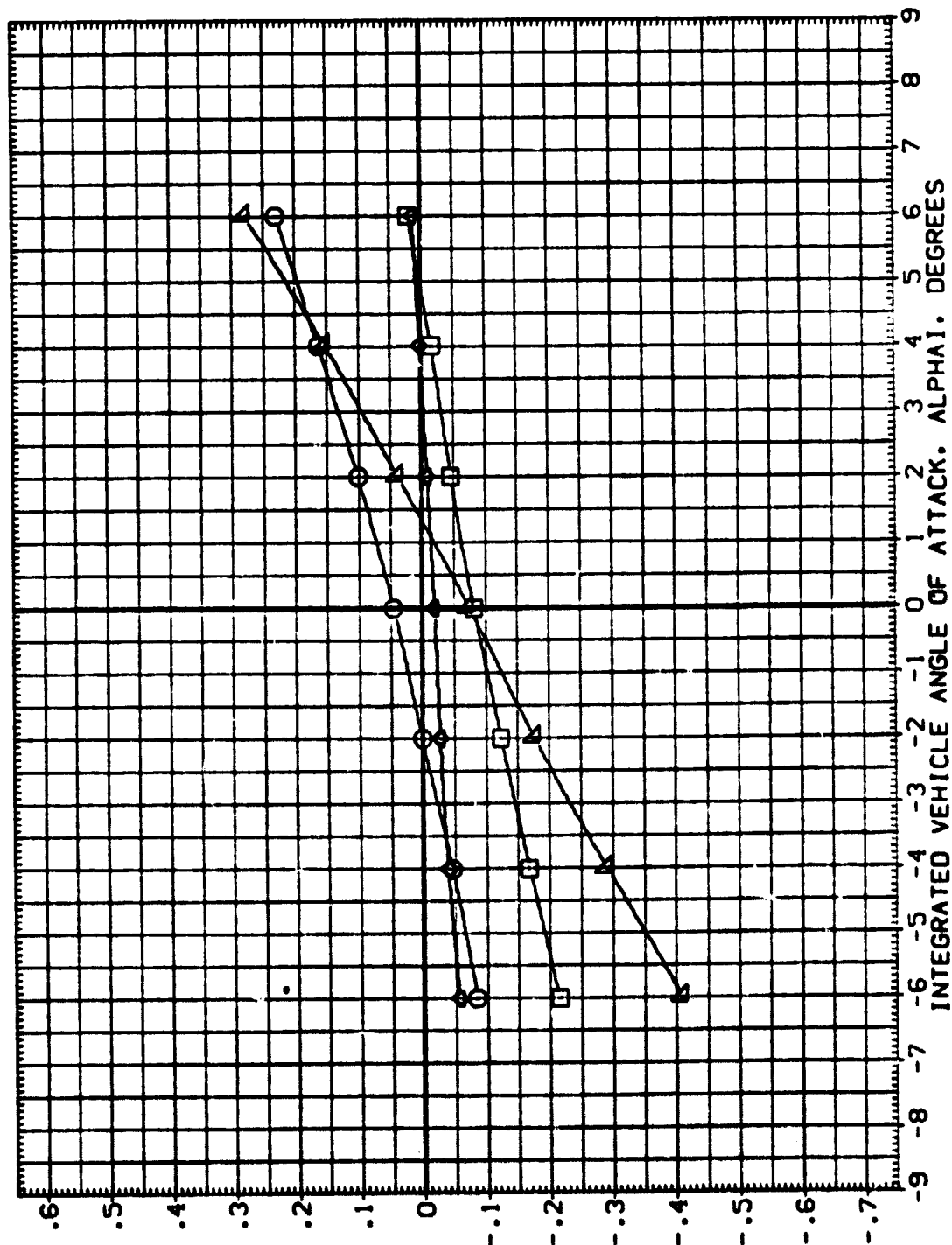


FIG. 8 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS. M=2.0 DEV=8/-4

FOREBODY NORMAL FORCE COEFFICIENT, CNF

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPCGRK	REFERENCE INFORMATION
(MET036)	AMES97-019(IAB1) LVAP ORBITTER-ALL M SEALED	8.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET136)	AMES97-019(IAB1) LVAP TANK - ALL M SEALED	8.000	-4.000	2.000	.000	LSEF 1297.0000 IN.
(MET136)	AMES97-019(IAB1) LVAP L-SRB - ALL M SEALED	8.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(MET136)	AMES97-019(IAB1) LVAP R-LRB - ALL M SEALED	8.000	-4.000	2.000	.000	YHRP 976.0000 IN.
(MET136)	AMES97-019(IAB1) LVAP INT VEH ALL M SEALED	8.000	-4.000	2.000	.000	YHRP 400.0000 IN.
						ZHRP .0300
						SCALE

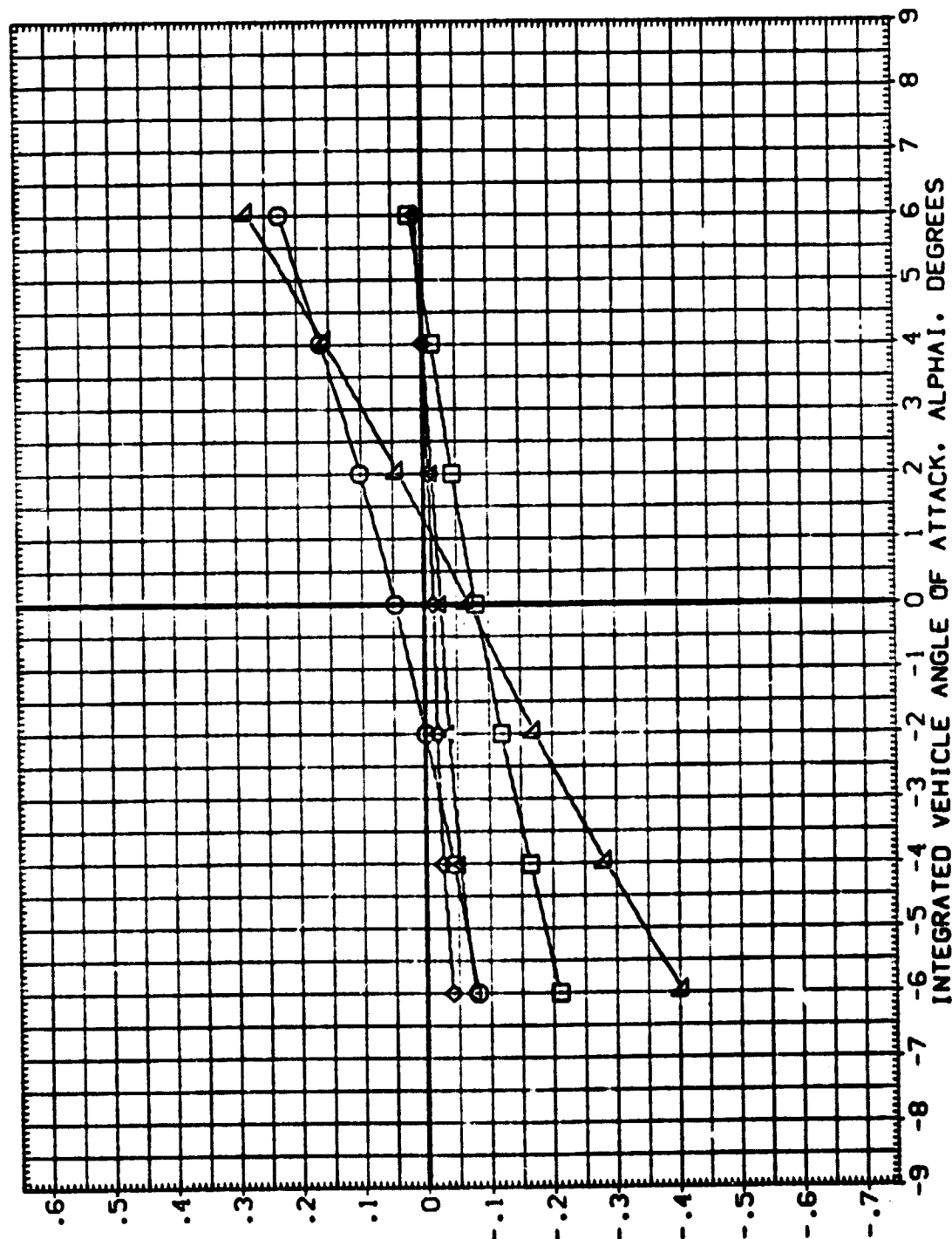


FIG. 8 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4

(E)BET.1 = 2.00

DATA SET SYMBOL: (MET136) (MET136) (MET136) (MET136)

CONFIGURATION DESCRIPTION: ORBITER-ALL M SEALED
 TANK - ALL M SEALED
 L-SPB - ALL M SEALED
 R-SPB - ALL M SEALED
 INT VEH ALL M SEALED

ELV-1B: 8.000 8.000 8.000 8.000 8.000 8.000

ELV-0B: -4.000 -4.000 -4.000 -4.000 -4.000 -4.000

MACH: 2.000 2.000 2.000 2.000 2.000 2.000

SPOBRK: .000 .000 .000 .000 .000 .000

REFERENCE INFORMATION: SREF 2690.0000 SO.FT.
 LREF 1297.0000 IN.
 BREF 1297.0000 IN.
 XREF 976.0000 IN.
 YREF 976.0000 IN.
 ZREF 400.0000 IN.
 SCALE .0300

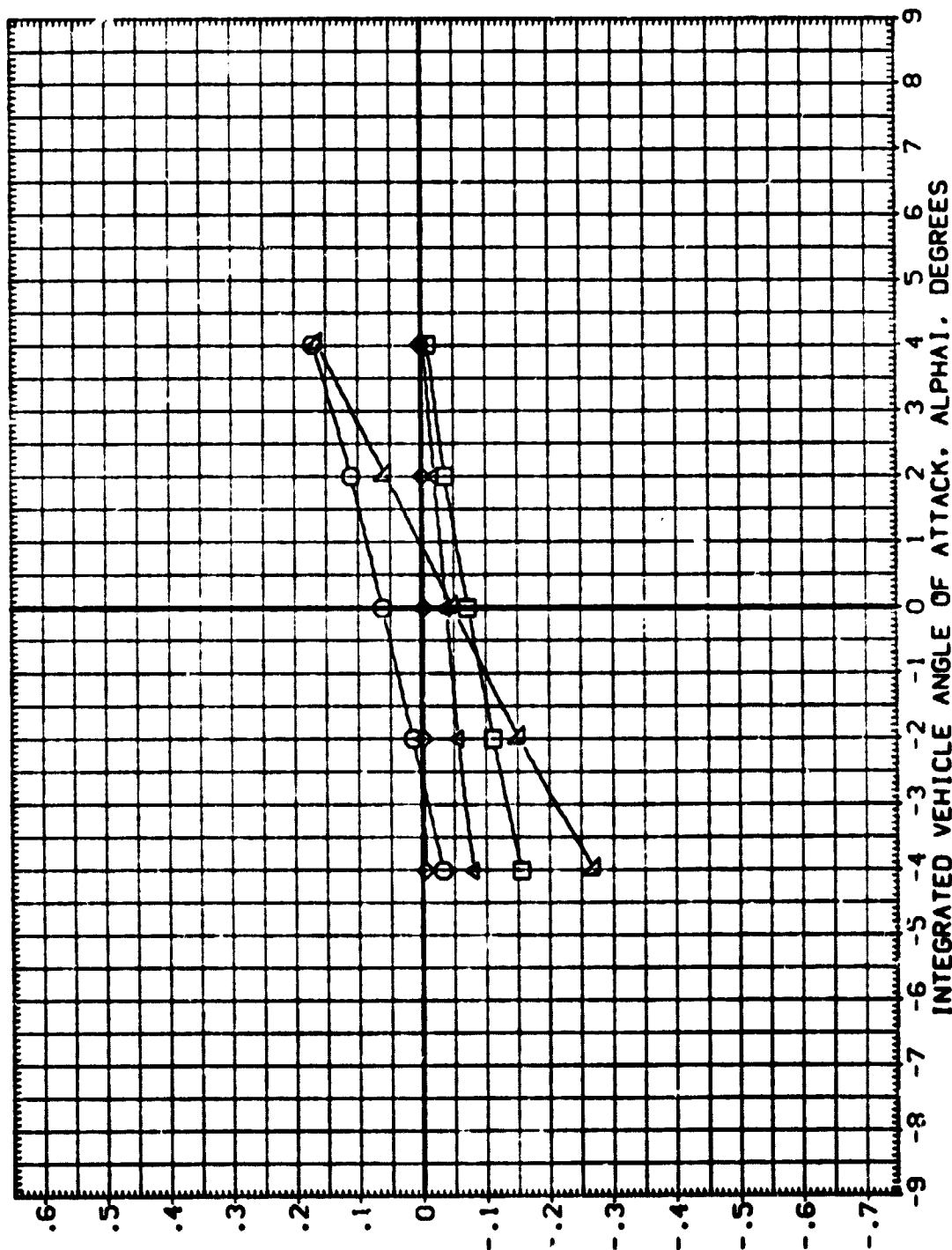


FIG. 8 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4

(G)BET.1 = 6.00

DATA SET SYMBOL: (MET136) (MET136) (MET136) (MET136) (MET136)

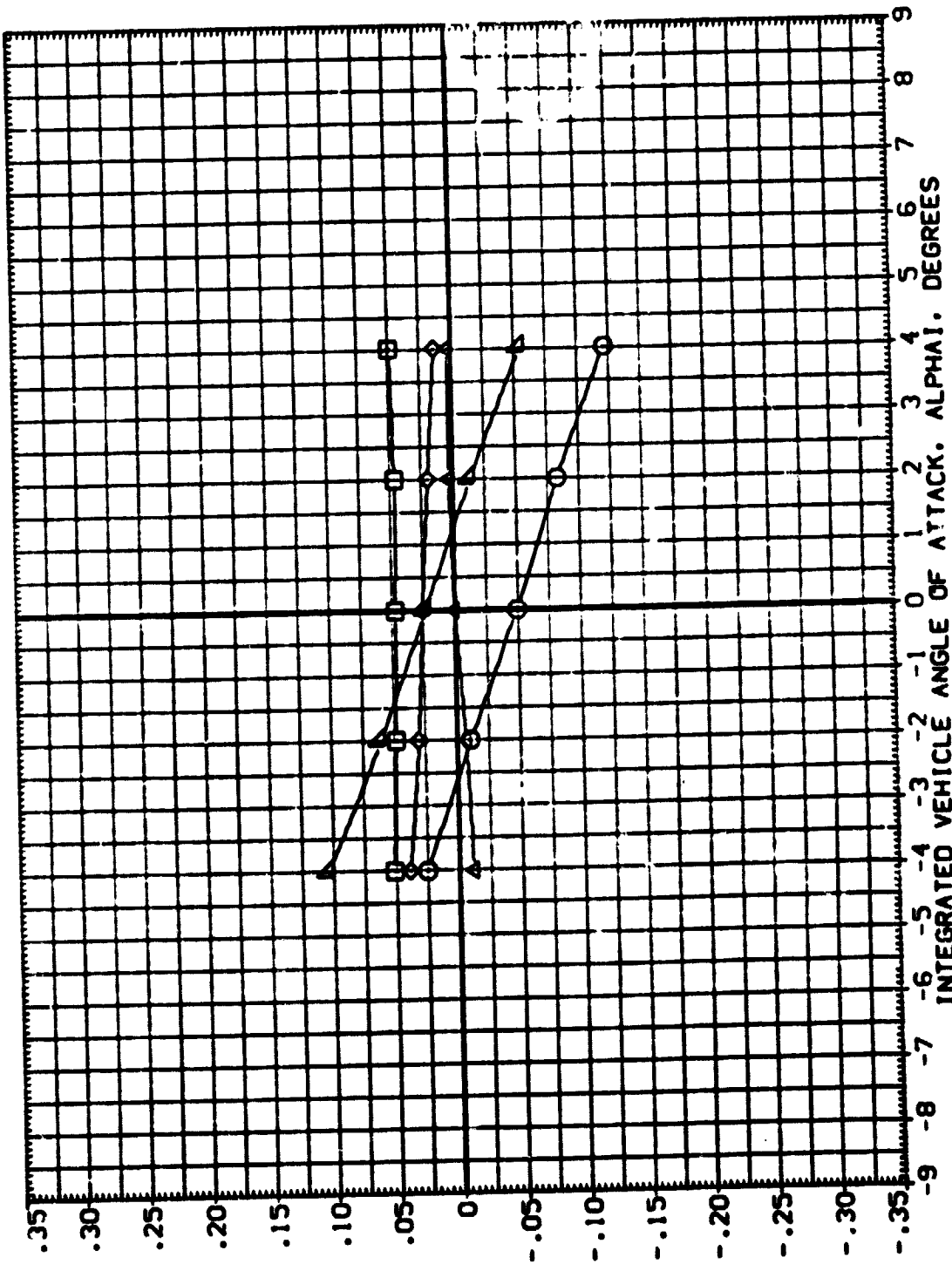
CONFIGURATION DESCRIPTION: MES97-019(IAB1) LVAP ORBITER-ALL ML SEALED
 MES97-019(IAB1) LVAP TANK - ALL ML SEALED
 MES97-019(IAB1) LVAP L-SRB - ALL ML SEALED
 MES97-019(IAB1) LVAP R-LRB - ALL ML SEALED
 MES97-019(IAB1) LVAP INT VEN ALL ML SEALED

ELV-18: 8.000 -4.000 8.000 -4.000 8.000 -4.000 8.000 -4.000

ELV-08: -4.000 2.000 -4.000 2.000 -4.000 2.000 -4.000 2.000

SPOBRK: .000 .000 .000 .000 .000 .000 .000 .000

REFERENCE INFORMATION: SREF 2650.0000 SQ.FT. IN.
 LREF 1257.0000 IN.
 BREF 1257.0000 IN. XT
 XMRP 976.0000 IN. YT
 YMRP .0000 IN. ZT
 ZMRP 400.0000 IN. ZT
 SCALE .0300



FOREBODY PITCHING MOMENT COEFFICIENT, C_{MP}

FIG. 8 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4

(A)BETA1 = -6.00

DATA SET SYMBOL: (MET028) (MET1136) (MET1136) (MET1136) (MET1136)

CONFIGURATION DESCRIPTION: ANE597-019(IAB1) LVAP ORBITER-ALL ML SEALED TANK - ALL ML SEALED ANE597-019(IAB1) LVAP L-SRB - ALL ML SEALED ANE597-019(IAB1) LVAP R-LNB ALL ML SEALED ANE597-019(IAB1) LVAP INT VEW ALL ML SEALED

ELV-18: 9.000 8.000 8.000 8.000 8.000 8.000

ELV-08: -4.000 -4.000 -4.000 -4.000 -4.000 -4.000

MACH: 2.000 2.000 2.000 2.000 2.000 2.000

SPOBRK: .000 .000 .000 .000 .000 .000

REFERENCE INFORMATION: SREF 2690.0000 SO.FT. LREF 1297.0000 IN. BREF 1297.0000 IN. XMRP 976.0000 IN. YMRP .0000 IN. ZMRP 400.0000 IN. SCALE .0300

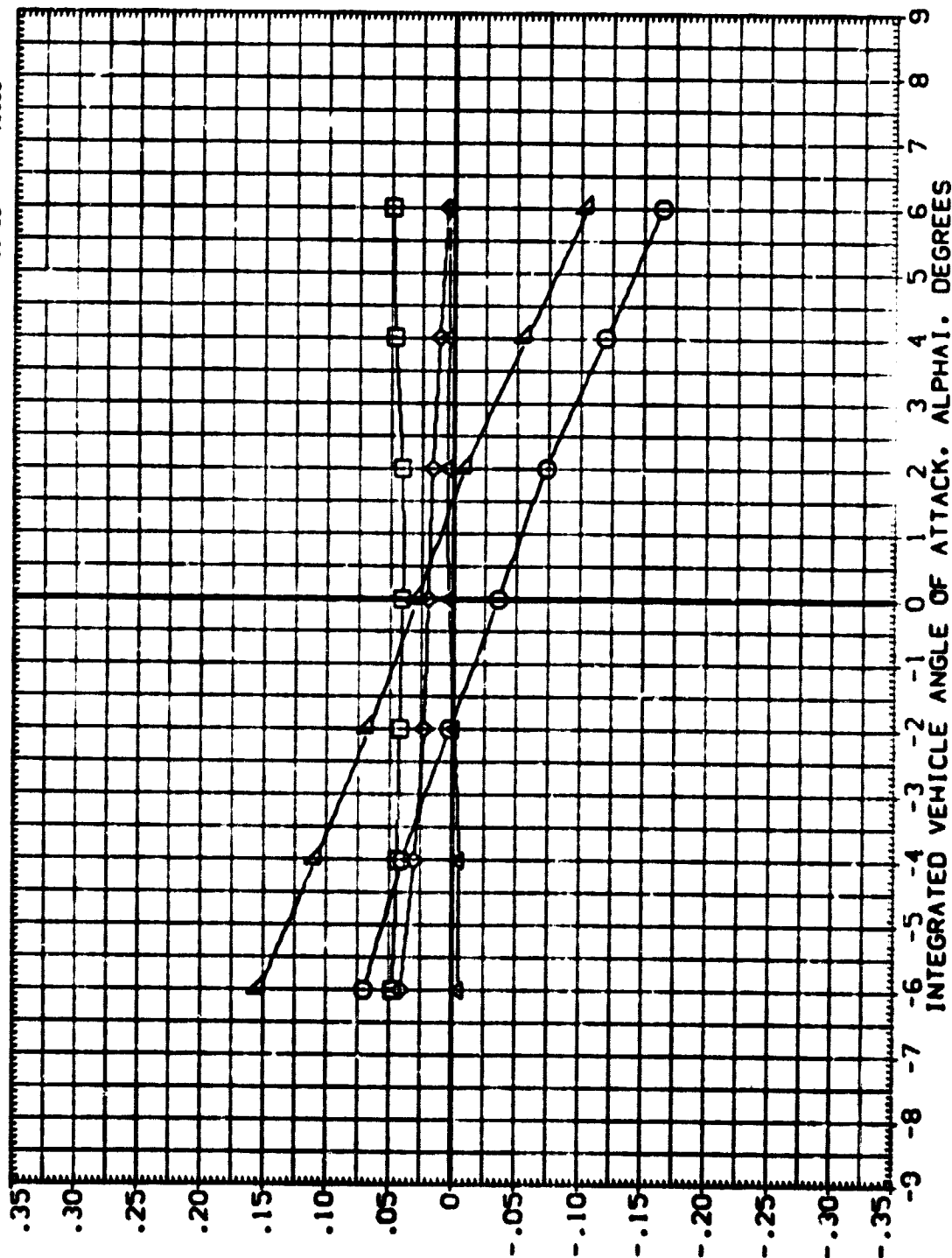


FIG. 8 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4

(B)BET.1 = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(MET026)	AMES97-019(IAB1) LVAP CRG1TER-ALL ML SEALED	8.000	-4.000	2.000	.000	SREF 2590.0000 SO.FT.
(MET136)	AMES97-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(MET136)	AMES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	8.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(MET136)	AMES97-019(IAB1) LVAP R-LRB - ALL ML SEALED	8.000	-4.000	2.000	.000	XMRP 976.0000 IN. XT
(MET136)	AMES97-019(IAB1) LV.P INT VEH ALL ML SEALED	8.000	-4.000	2.000	.000	VMRP .0000 IN. VT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

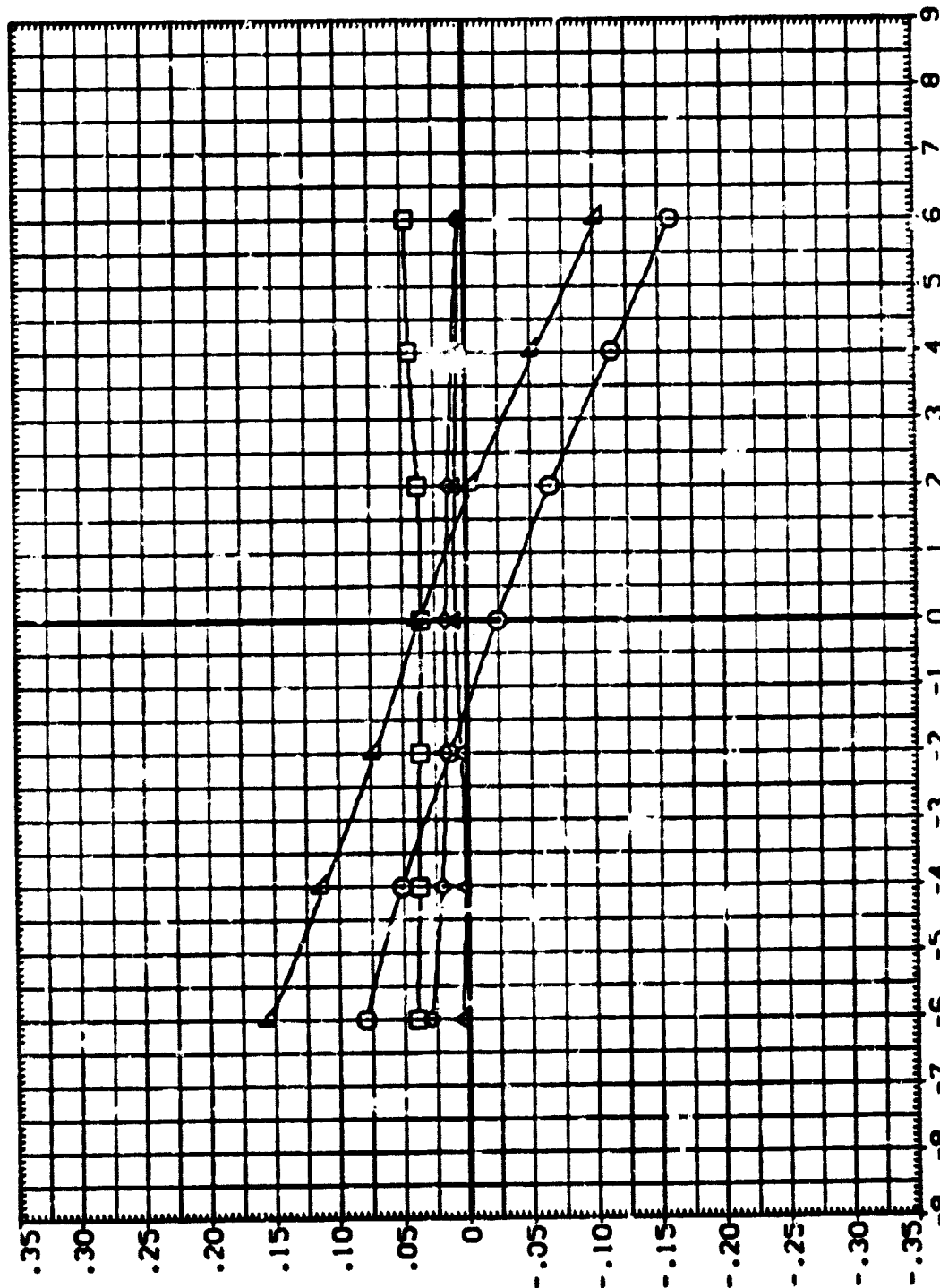
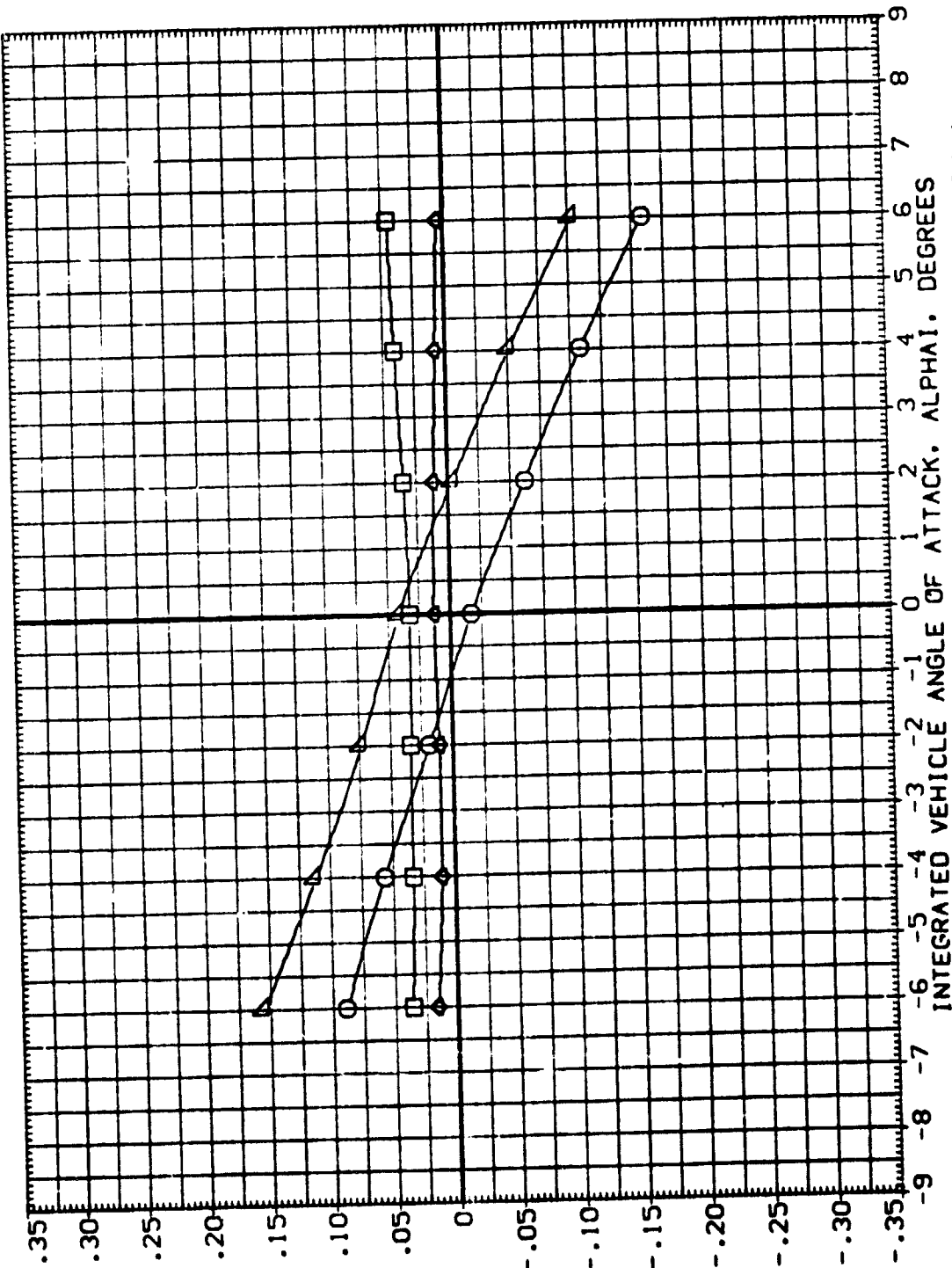


FIG. 8 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4

DATA SET SYMBOL
 (MET036)
 (MET136)
 (MET136)
 (MET136)
 (MET136)

CONFIGURATION DESCRIPTION
 AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED
 AMES97-019(IAB1) LVAP TANK - ALL HL SEALED
 AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED
 AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED
 AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED

ELV-1B ELV-0B MACH SPOBRK REFERENCE INFORMATION
 8.000 -4.000 2.000 .000 SREF 2690.0000 SQ.FT.
 8.000 -4.000 2.000 .000 LREF 1297.0000 IN.
 8.000 -4.000 2.000 .000 BREF 1297.0000 IN.
 8.000 -4.000 2.000 .000 YMRP 976.0000 IN.
 8.000 -4.000 2.000 .000 ZMRP 400.0000 IN.
 SCALE .0300



FOREBODY PITCHING MOMENT COEFFICIENT, CLMP

FIG. 8 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4

(O)BET.1 = .00

DATA SET SYMBO.	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(MET136)	AME597-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET136)	AME597-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(MET136)	AME597-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(MET136)	AME597-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.000	.000	XMRP 976.0000 IN.
(MET136)	AME597-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.000	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

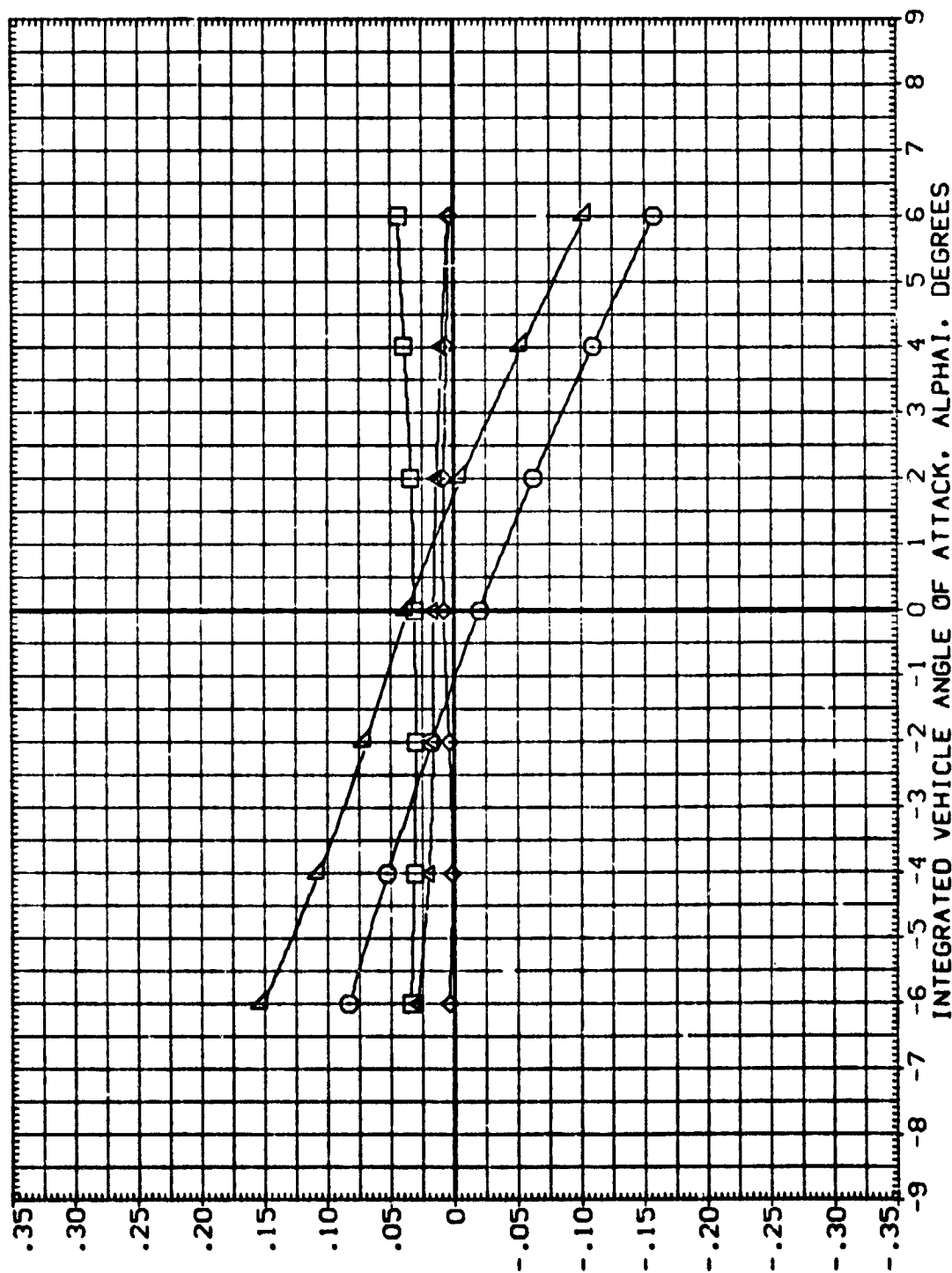


FIG. 8 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4

(E)BETA1 = 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-DB	MACH	SPDBRK	REFERENCE INFORMATION
(MET136)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.000	.000	SREF 2690.0000 SO.FT.
(MET136)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(MET136)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(MET136)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.000	.000	XMRP 976.0000 IN. XT
(MET136)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.000	.000	YMRP 400.0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

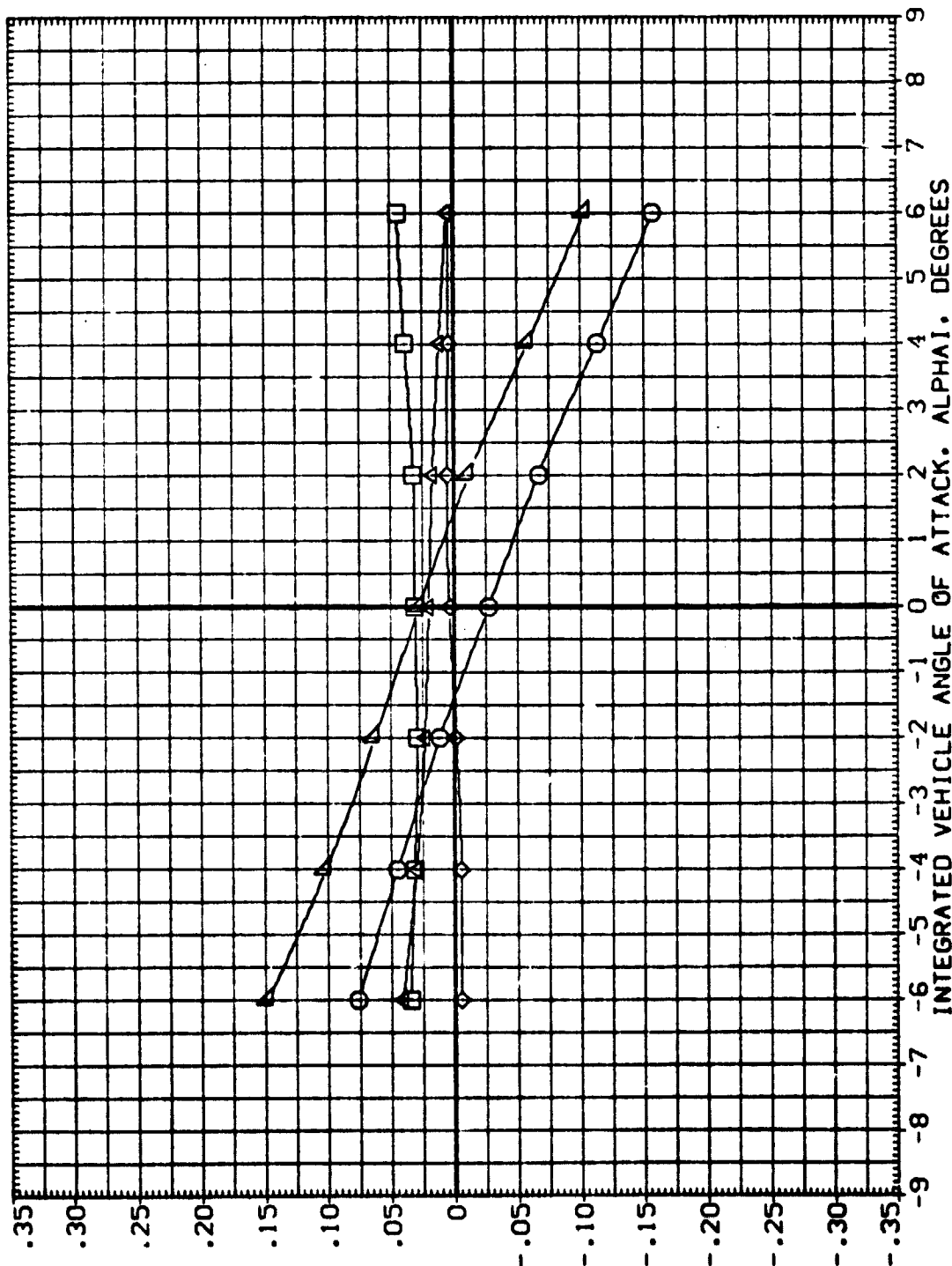
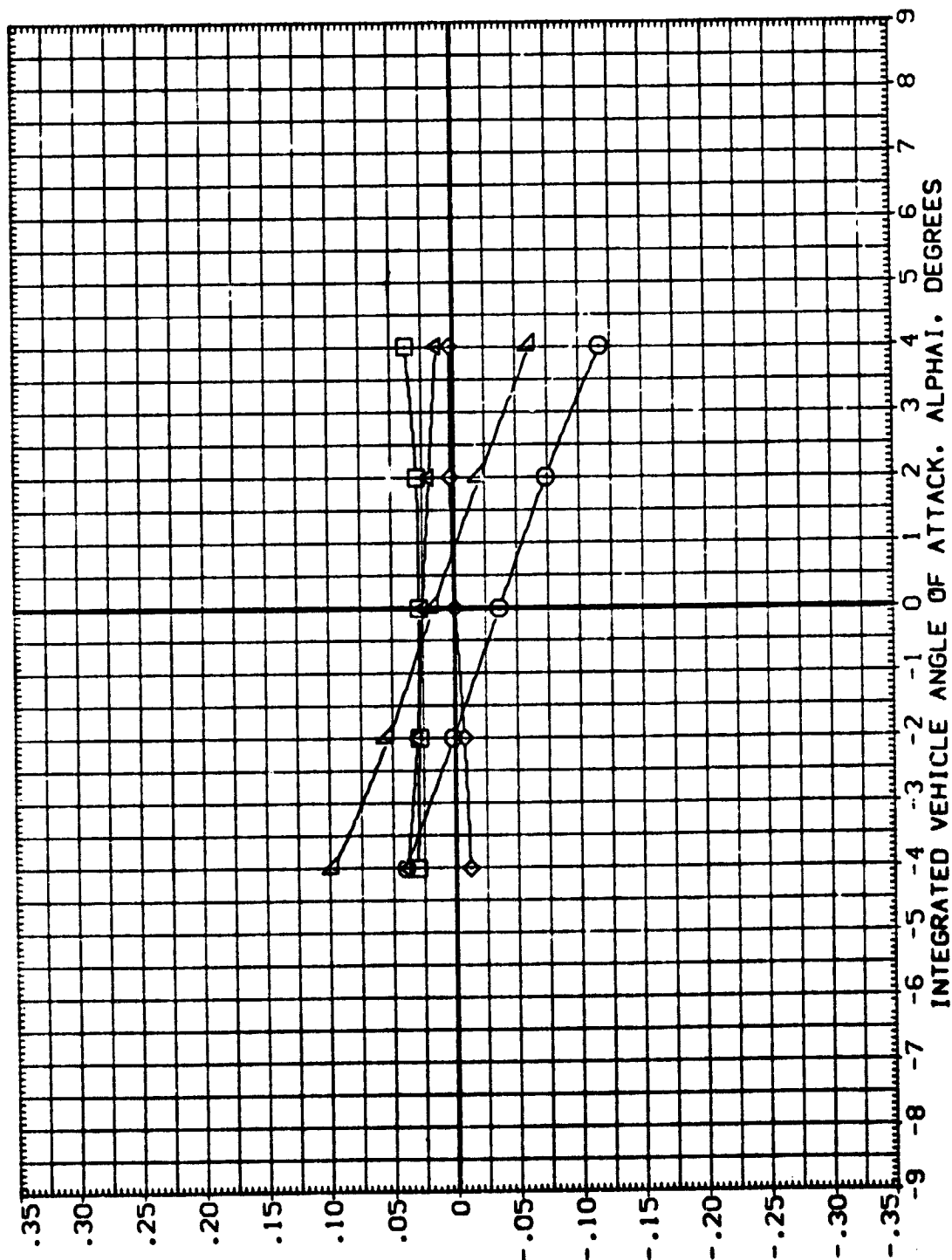


FIG. 8 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4

(F)BET.1 = 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(ME:036)	AMES97-019(IAB1) LVAP ORBITTER-ALL HL SEALED	8.000	-4.000	2.000	.000	SREF 2690.0000
(ME:136)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.000	.000	LREF 1297.0000
(ME:236)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.000	.000	BREF 1297.0000
(ME:336)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	8.000	-4.000	2.000	.000	XMRP 976.0000
(ME:436)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.000	.000	ZMRP 400.0000
						SCALE .0300



FOREBODY PITCHING MOMENT COEFFICIENT, CLMP

FIG. 8 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4

(G)BET.1 = 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-09	MACH	SPDRK	REFERENCE INFORMATION
(MET036)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.000	.000	SREF 2690.0000
(MET136)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.000	.000	LREF 1297.0000
(MET136)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.000	.000	BREF 1297.0000
(MET136)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.000	.000	XMRP 976.0000
(MET136)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.000	.000	YMRP 400.0000
(MET136)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.000	.000	SCALE .0300

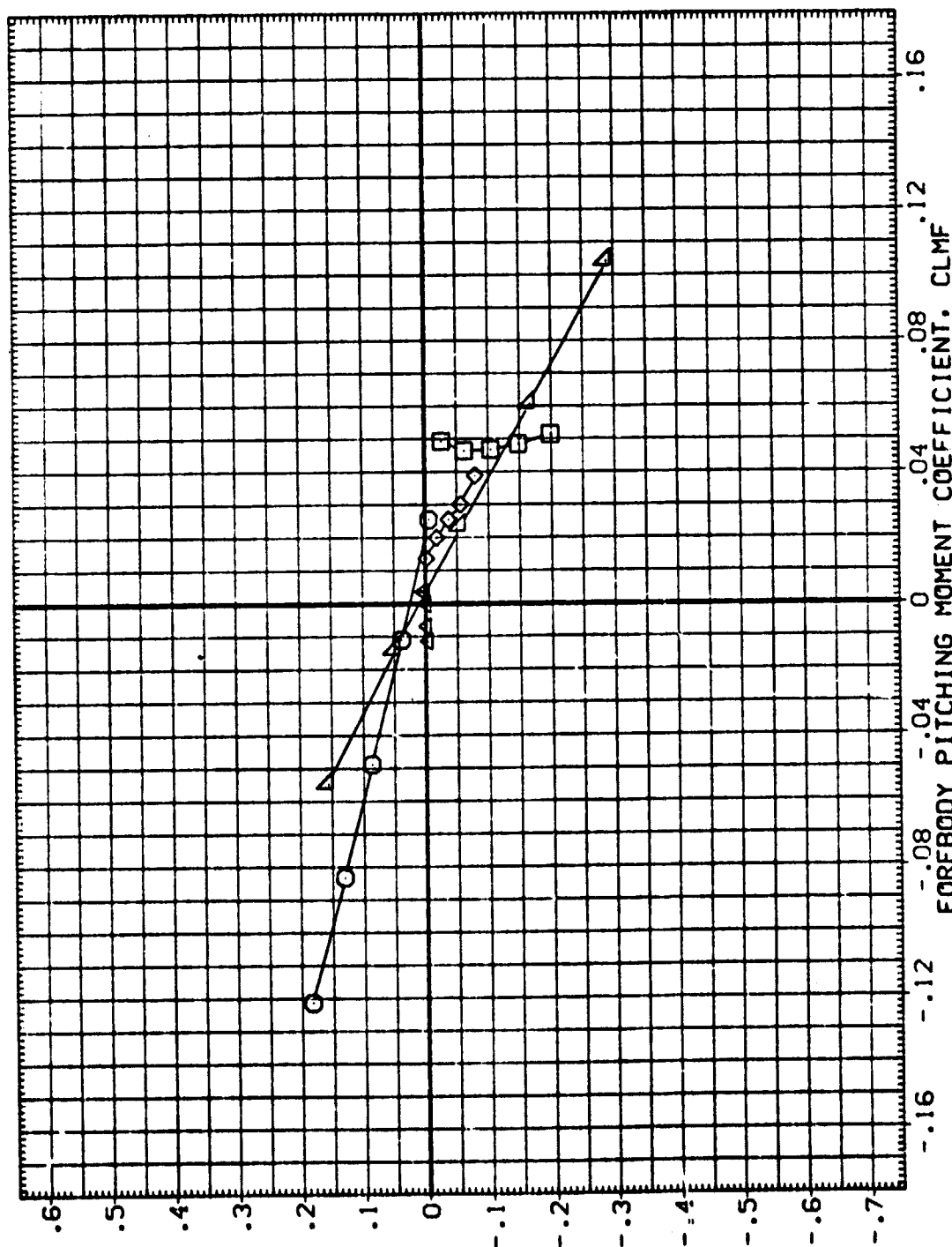


FIG. 8 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4

(A)BET.1 = -6.00

DATA SET SYMBOL	CONF:IGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPOBRK	REFERENCE INFORMATION
(MET136)	AMES97-019(1A81) LVAP CRBITTER-ALL HL SEALED	8.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET136)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(MET136)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(MET136)	AMES97-019(1A81) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.000	.000	YMRP 976.0000 IN.
(MET136)	AMES97-019(1A81) LVAP IN: VEH ALL HL SEALED	8.000	-4.000	2.000	.000	ZMRP 400.0000 IN.
						SCALE .0300

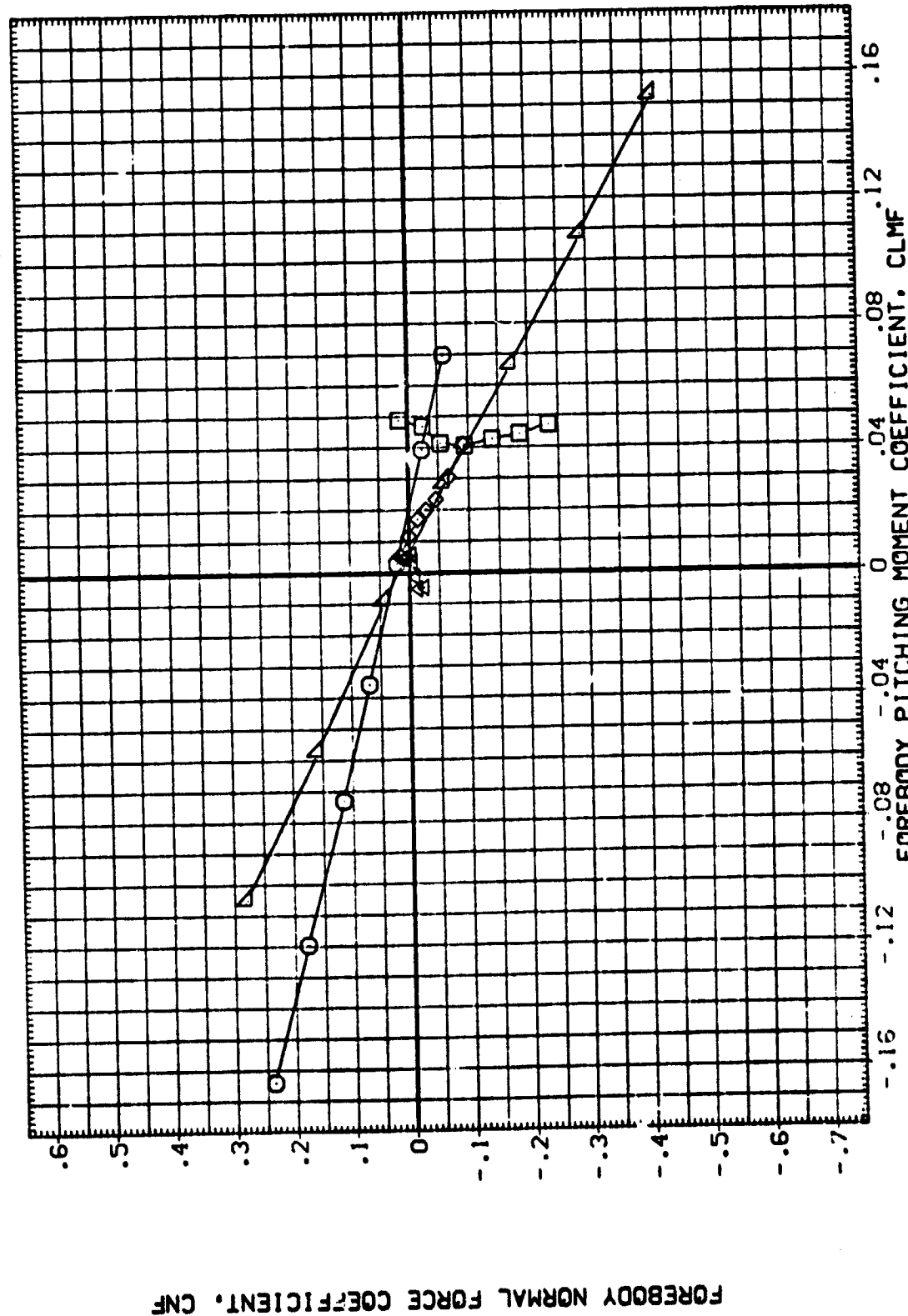


FIG. 8 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(MET036)	AMES97-019(1A81) LVAP ORBITER-ALL ML SEALED	8.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET136)	AMES97-019(1A81) LVAP TANK - ALL ML SEALED	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(METL35)	AMES97-019(1A81) LVAP L-SRB - ALL ML SEALED	8.000	-4.000	2.000	.000	BREF 1297.0000 IN. XT
(METR36)	AMES97-019(1A81) LVAP R-LRB - ALL ML SEALED	8.000	-4.000	2.000	.000	YMRP 976.0000 IN. YT
(MET136)	AMES97-019(1A81) LVAP INT VEN ALL ML SEALED	8.000	-4.000	2.000	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

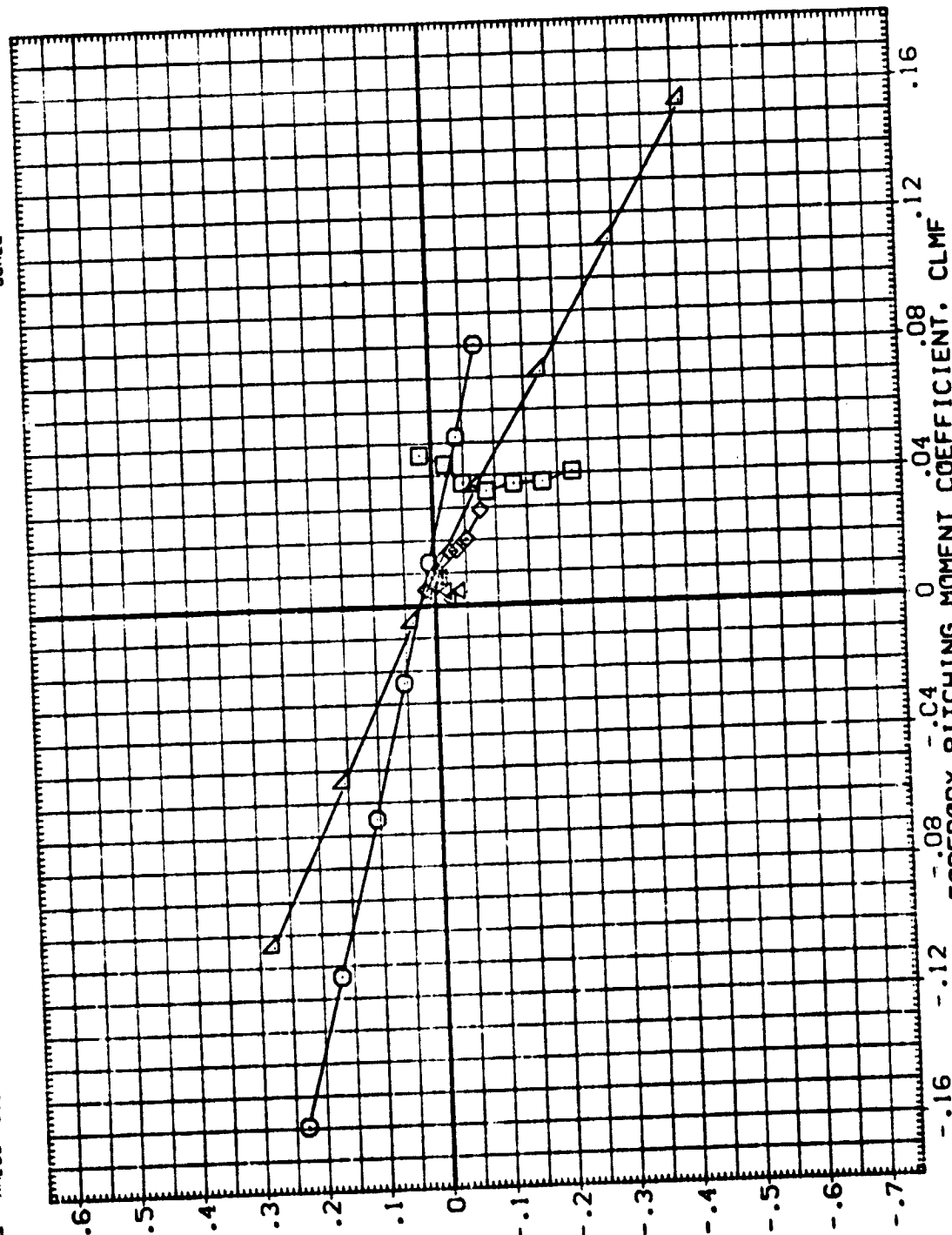


FIG. 8 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4

(CBETA) = -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(MET036)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET136)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(METL35)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(METR36)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.000	.000	XMRP 976.0000 IN.
(MET136)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.000	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

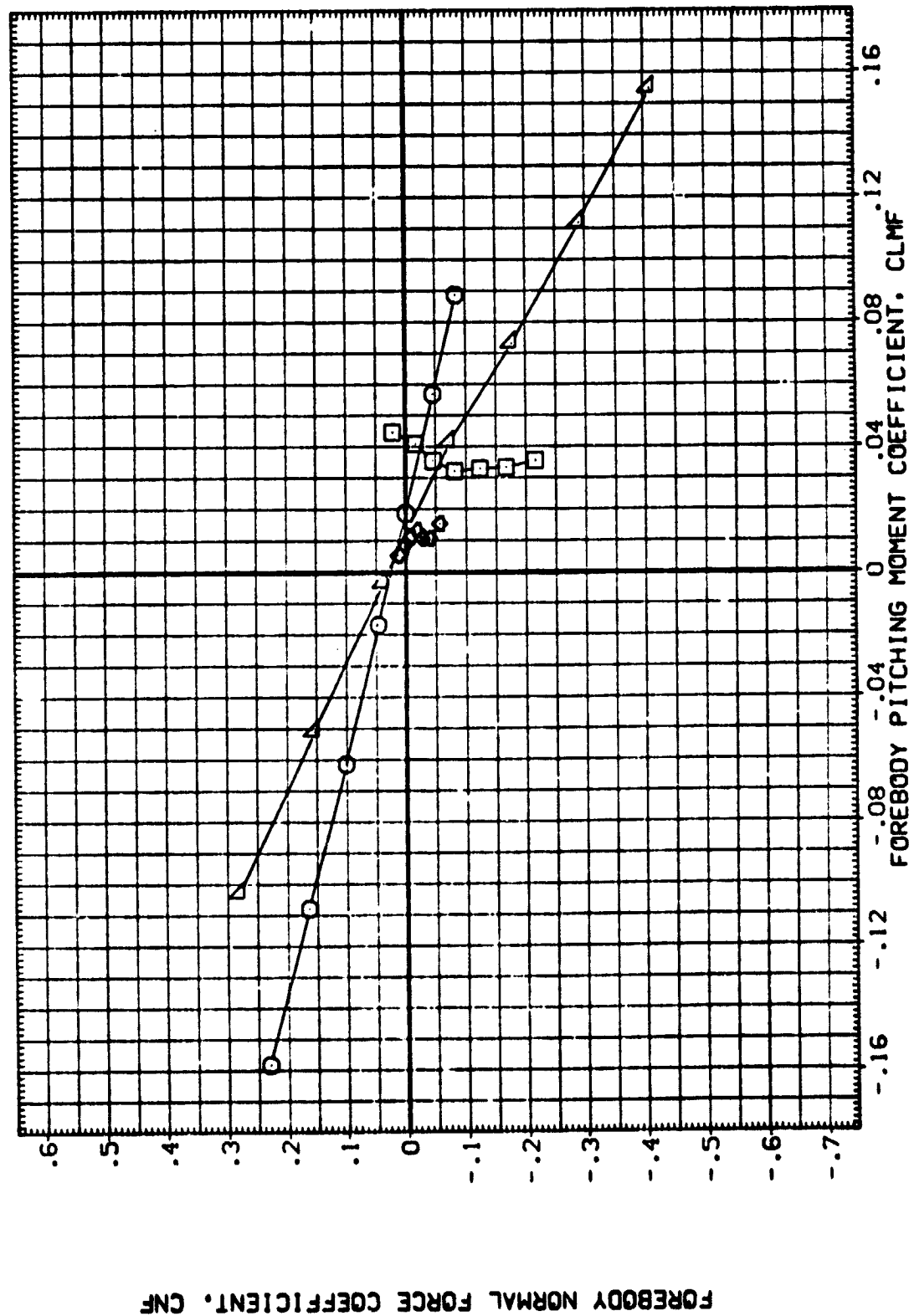


FIG. 8 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4

(0)BET.1 = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-09	MACH	SPOBRK	REFERENCE INFORMATION
(MET136)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET136)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(MET136)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(MET136)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.000	.000	XHRP 976.0000 IN. XT
(MET136)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.000	.000	YHRP 400.0000 IN. YT
						SCALE .0300

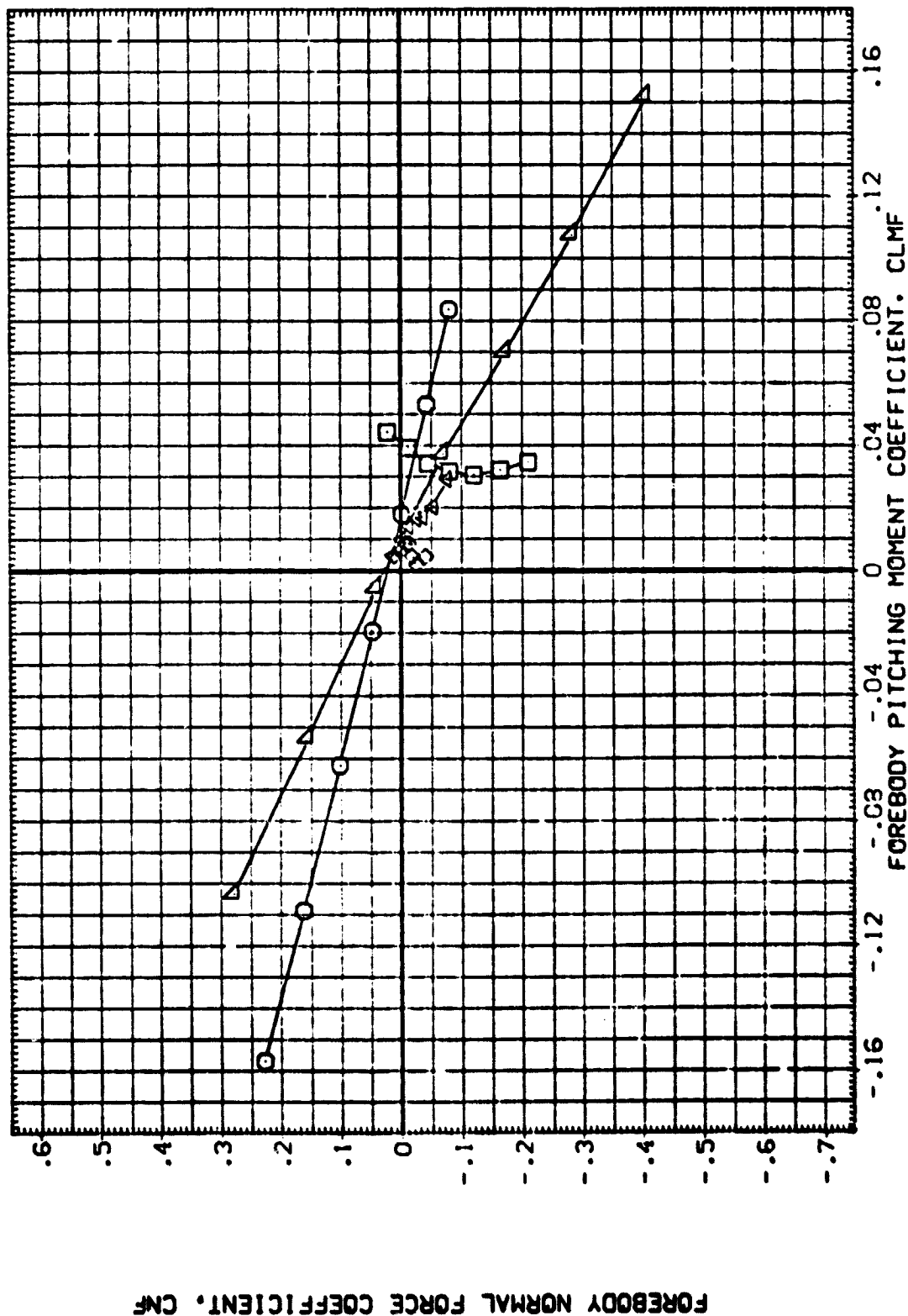


FIG. 8 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4

(E)BET.1 = 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(MET036)	AMES97-019(IAB1) LVAP ORBITER-ALL ML SEALED	8.000	-4.000	2.000	.000	SREF 2690.0000 SO.FT.
(MET136)	AMES97-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(MET136)	AMES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	8.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(MET136)	AMES97-019(IAB1) LVAP R-LRB - ALL ML SEALED	8.000	-4.000	2.000	.000	XMRP 976.0000 IN. XT
(MET136)	AMES97-019(IAB1) LVAP INT VEH ALL ML SEALED	8.000	-4.000	2.000	.000	YMRP 400.0000 IN. YT
						ZMRP .0300
						SCALE

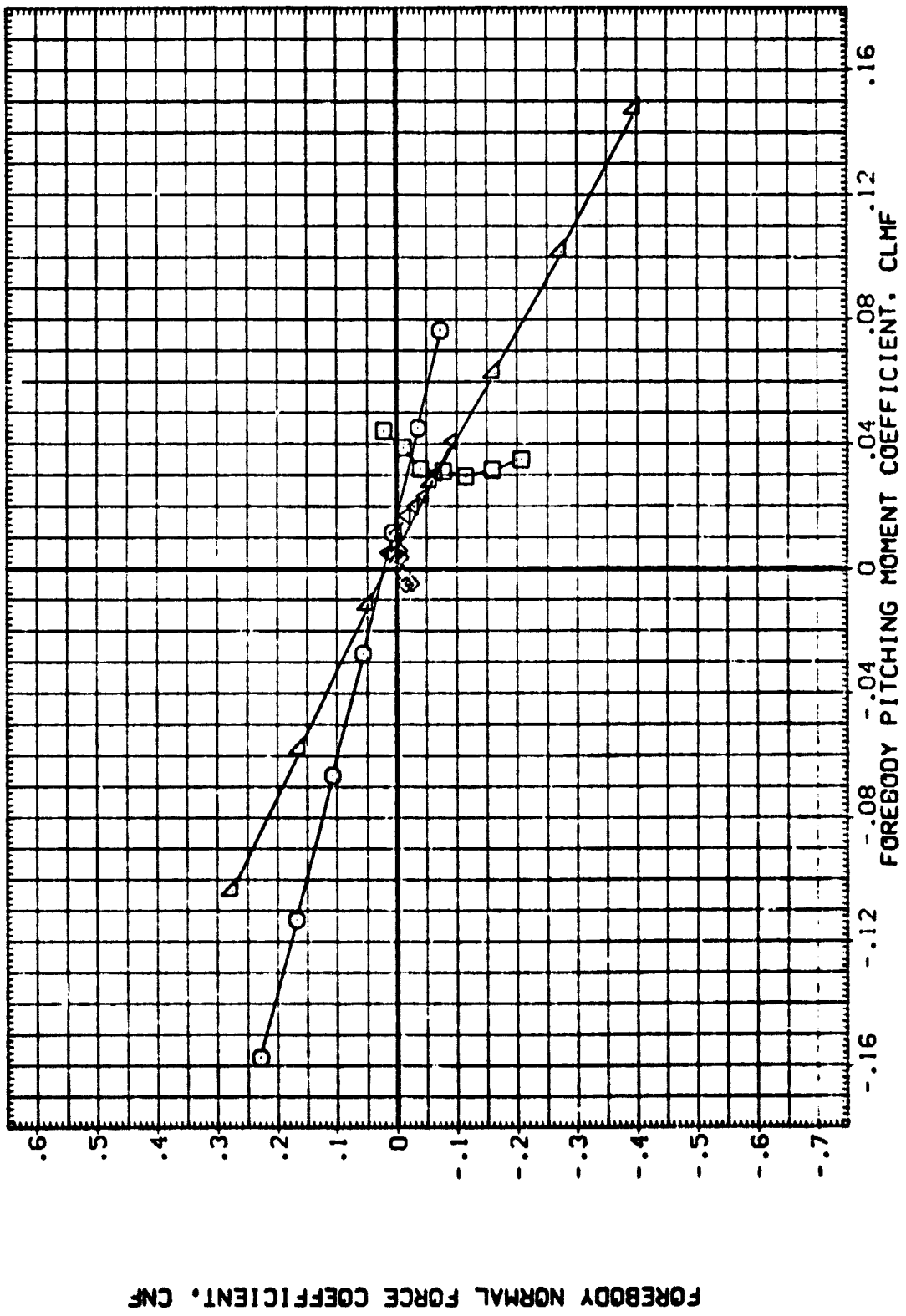


FIG. 8 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS. M=2.0 DEV=8/-4

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(MET136)	AMES97-019(1A81) LVAP ORBITER-ALL ML SEALED	8.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET136)	AMES97-019(1A81) LVAP TAM - ALL ML SEALED	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(MET136)	AMES97-019(1A81) LVAP L-SRB - ALL ML SEALED	8.000	-4.000	2.000	.000	SREF 1297.0000 IN.
(MET136)	AMES97-019(1A81) LVAP R-LRB - ALL ML SEALED	8.000	-4.000	2.000	.000	XMRP 976.0000 IN.
(MET136)	AMES97-019(1A81) LVAP INT VEH - ALL ML SEALED	8.000	-4.000	2.000	.000	ZMRP 400.0000 IN.
						SCALE .0300

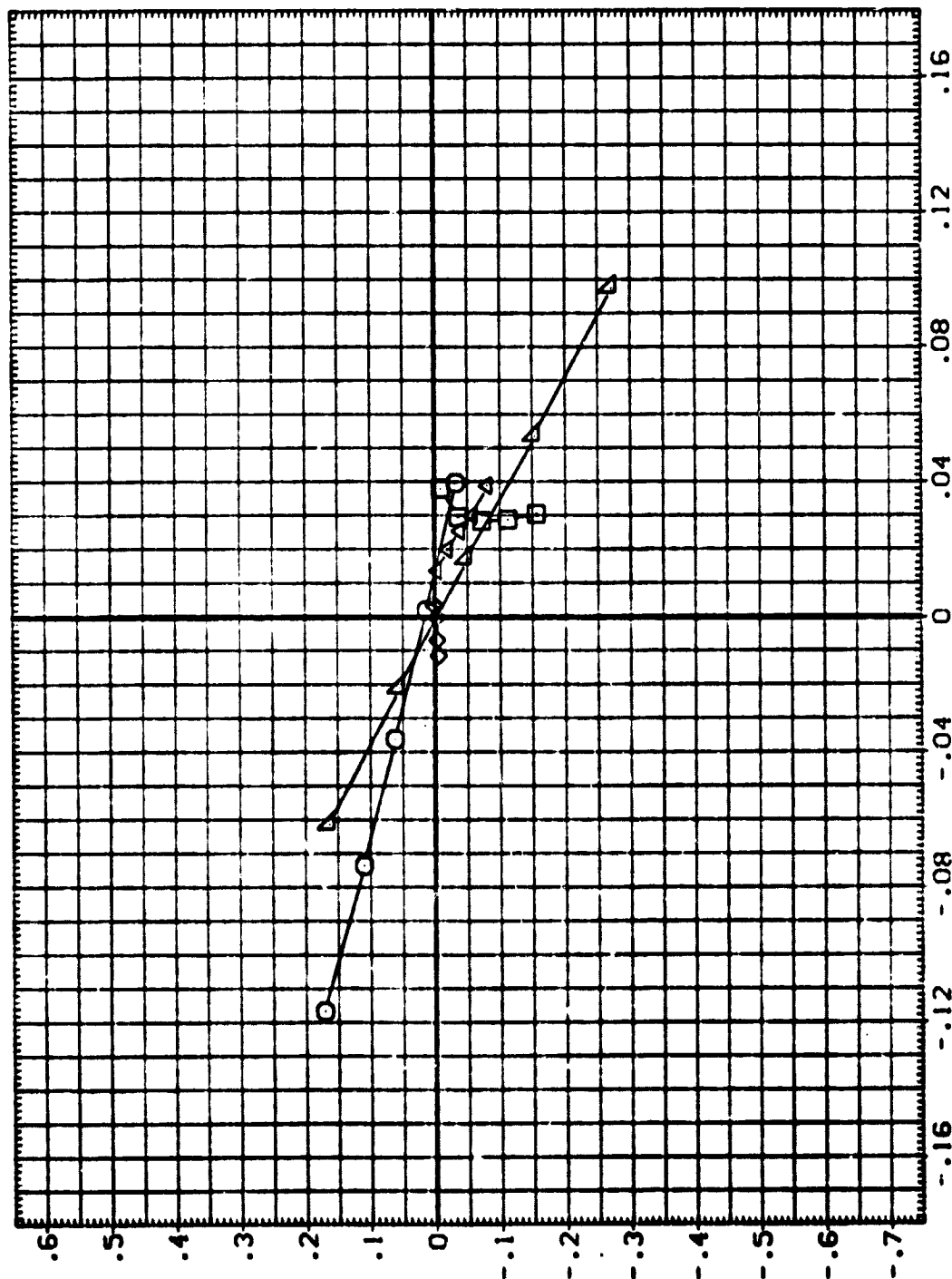


FIG. 8 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4

(G)BET.1 = 5.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MATH	SPOBRK	REFERENCE INFORMATION
(MET040)	APES97-019(IAB1) LVAP ORBITER-ALL ML SEALED	.000	.000	2.1000	.000	SREF 2690.0000 SQ.FT.
(MET140)	APES97-019(IAB1) LVAP TANK - ALL ML SEALED	.000	.000	2.0700	.000	LREF 1297.0000 IN.
(METL40)	APES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	.000	.000	2.0000	.000	BREF 1297.0000 IN.
(METR40)	APES97-019(IAB1) LVAP R-LRB ALL ML SEALED	.000	.000	2.0700	.000	XMRP 976.0000 IN. XT
(METI140)	APES97-019(IAB1) LVAP INT VEH ALL ML SEALED	.000	.000	2.5000	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

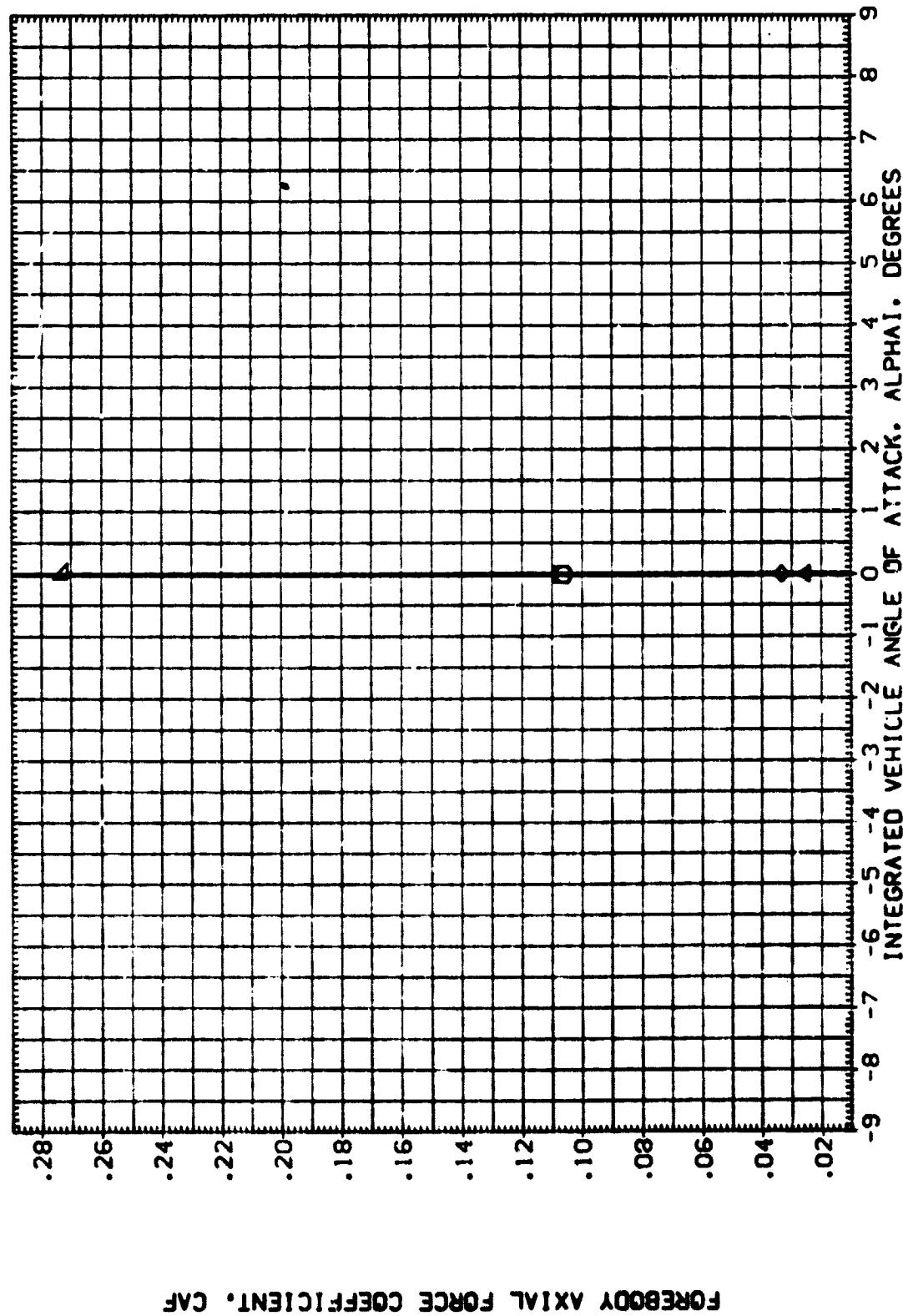


FIG. 9 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=0/0

(A)BET.1 = -5.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(MET140)	AMES97-019(IAB1) LVAP ORBITER-ALL ML SEALED	.000	.000	2.000	.000	SREF 2690.0000 SD.FT.
(MET140)	AMES97-019(IAB1) LVAP TANK - ALL ML SEALED	.000	.000	2.000	.000	LREF 1297.0000 IN.
(MET140)	AMES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	.000	.000	2.000	.000	BREF 1297.0000 IN.
(MET140)	AMES97-019(IAB1) LVAP R-LRB - ALL ML SEALED	.000	.000	2.000	.000	YMRP 976.0000 IN.
(MET140)	AMES97-019(IAB1) LVAP INT VEN ALL ML SEALED	.000	.000	2.000	.000	ZMRP 400.0000 IN.
						SCALE .0300

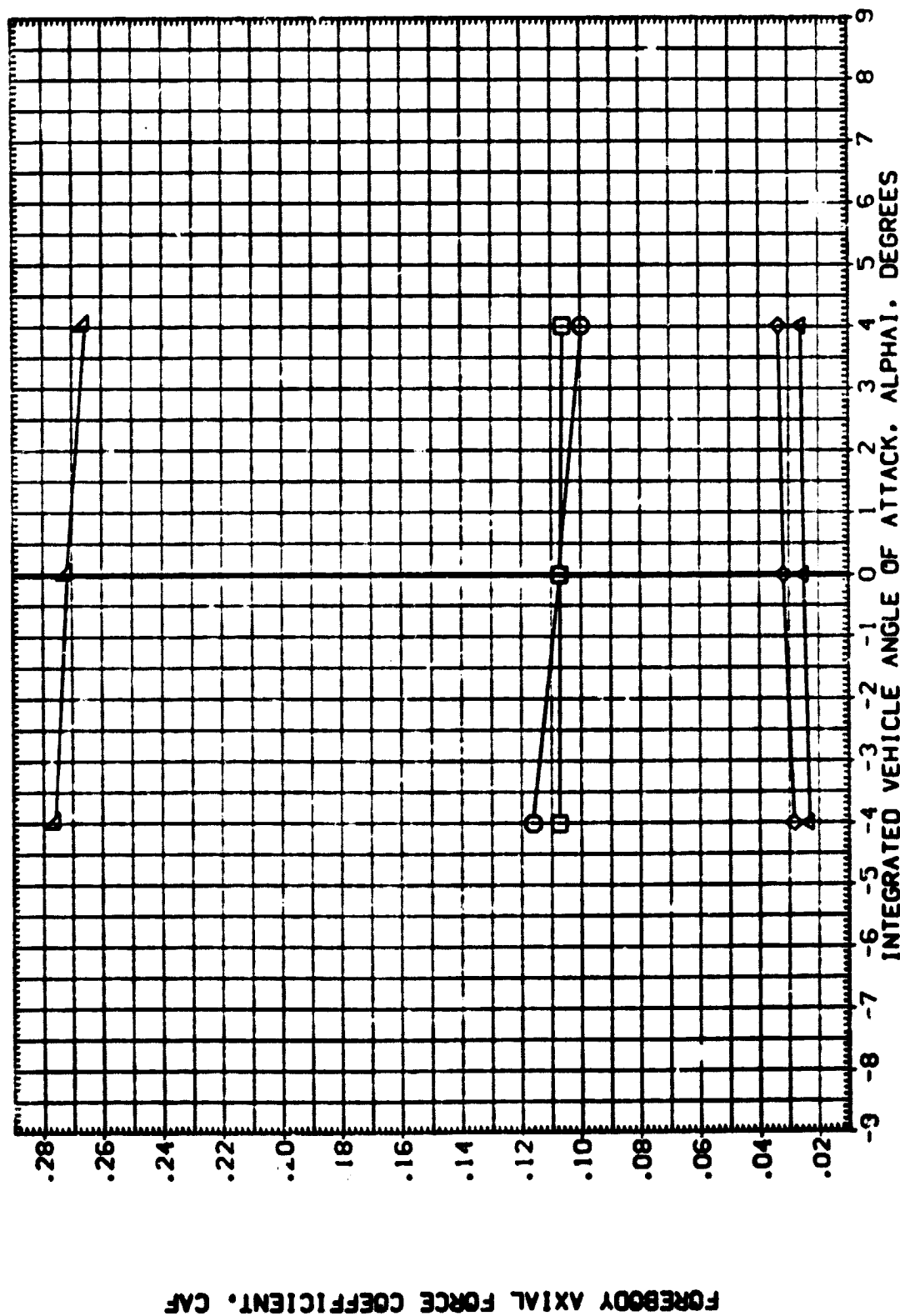


FIG. 9 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS. M=2.0 DEV=0/0

(B)BET.1 = -4.00

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ORIGINAL PAGE IS POOR

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(MET140)	AMES97-019(IAB1) LVAP CRBTR-ALL ML SEALED	.000	.000	2.000	.000	SREF 2690.0000 SO.FT.
(MET140)	AMES97-019(IAB1) LVAP TANK - ALL ML SEALED	.000	.000	2.000	.000	LREF 1297.0000 IN.
(MET140)	AMES97-019(IAB1) LVAP L-SMB - ALL ML SEALED	.000	.000	2.000	.000	BREF 1297.0000 IN.
(MET140)	AMES97-019(IAB1) LVAP R-LRB ALL ML SEALED	.000	.000	2.000	.000	YMRP 576.0000 IN. XT
(MET140)	AMES97-019(IAB1) LVAP INT VEM ALL ML SEALED	.000	.000	2.000	.000	YMRP 400.0000 IN. YT
						SCALE .0300

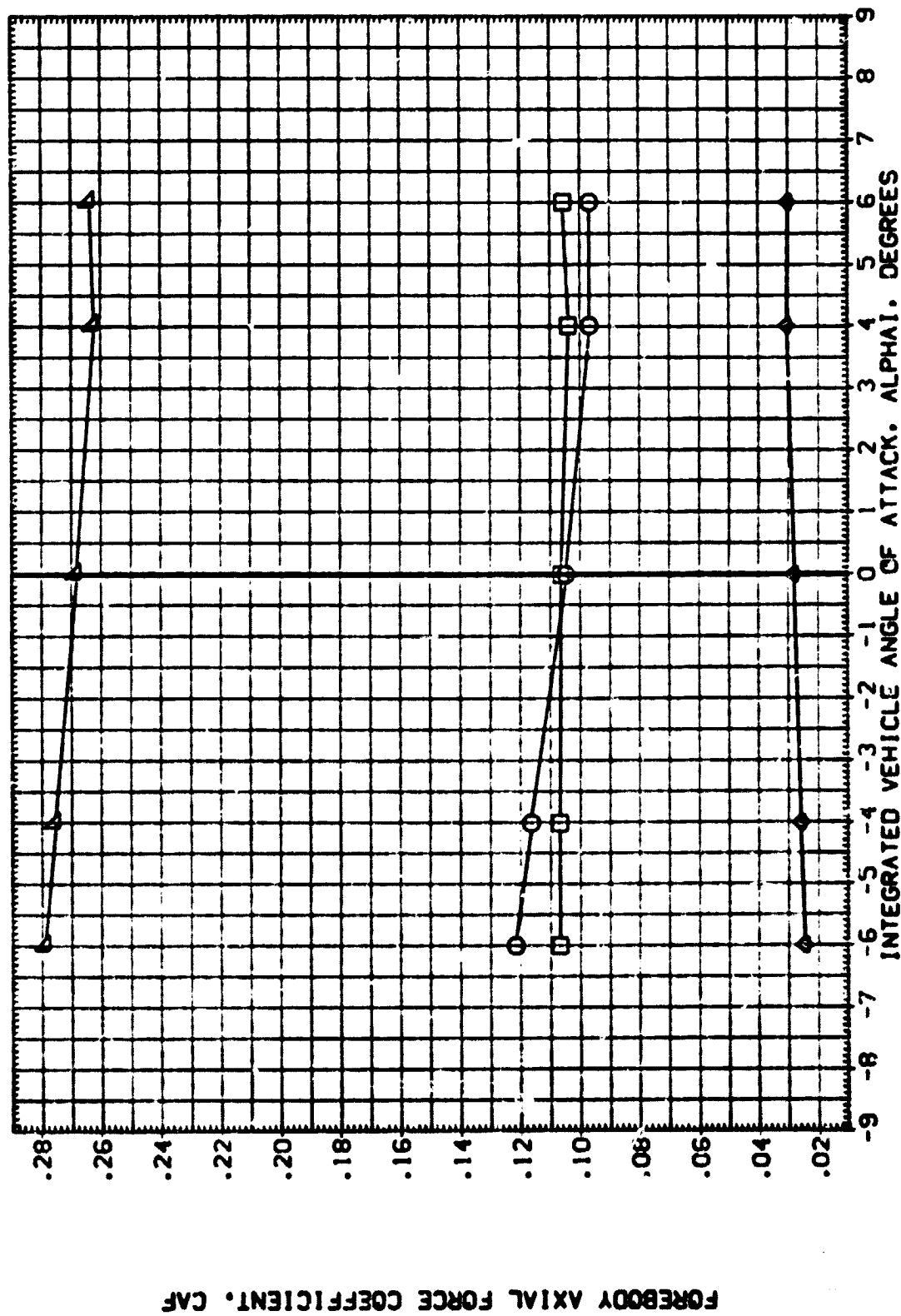


FIG. 9 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS. M=2.0 DEV=0/0

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(MET040)	AMES97-019(1A81) LVAP ORBITTER-ALL ML SEALED	.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET140)	AMES97-019(1A81) LVAP TANK - ALL ML SEALED	.000	.000	2.000	.000	LREF 1297.0000 IN.
(METL40)	AMES97-019(1A81) LVAP L-SRB - ALL ML SEALED	.000	.000	2.000	.000	BREF 1297.0000 IN.
(METR40)	AMES97-019(1A81) LVAP R-LRB ALL ML SEALED	.000	.000	2.000	.000	XMRP 976.0000 IN.
(MET140)	AMES97-019(1A81) LVAP INT VEH ALL ML SEALED	.000	.000	2.000	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

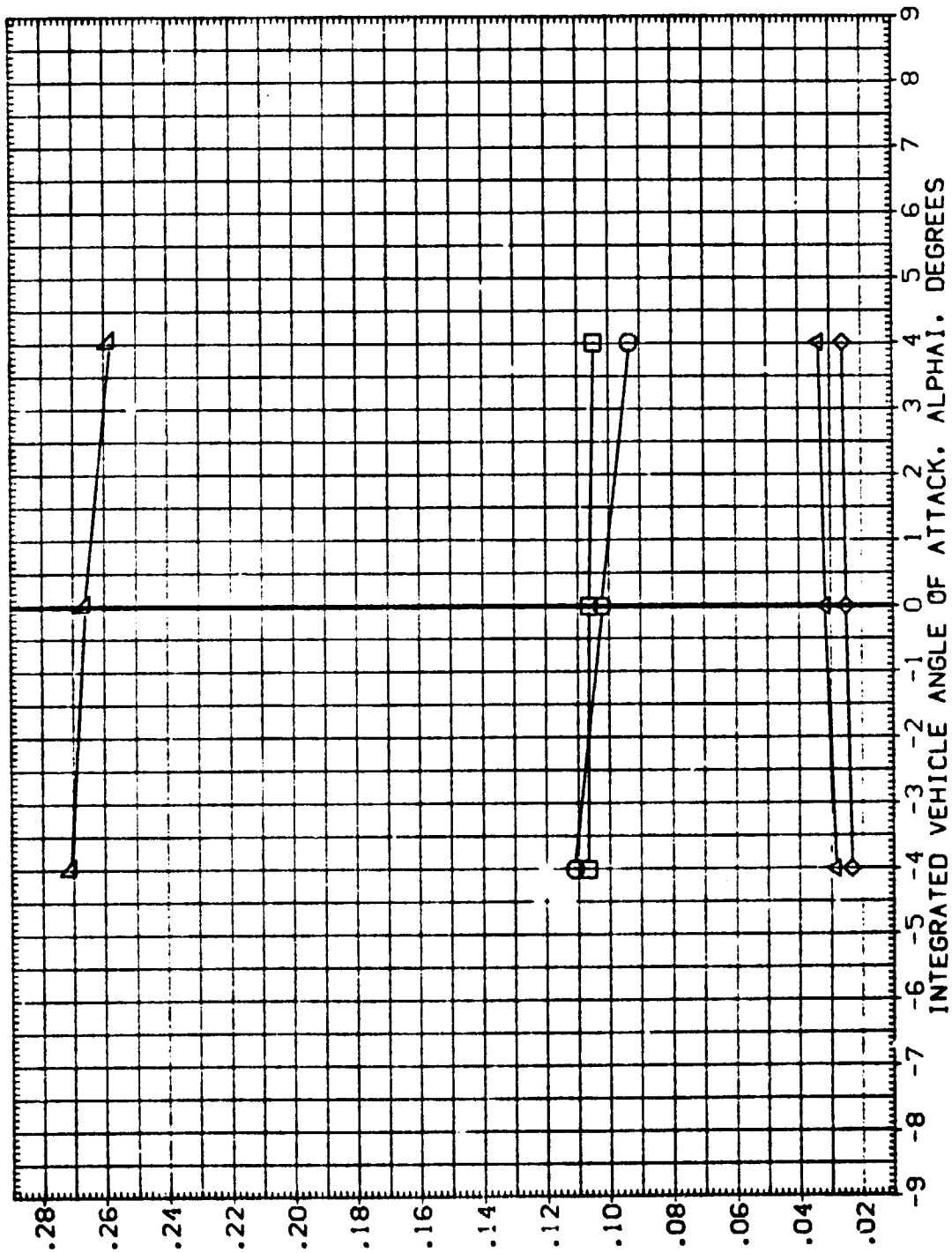
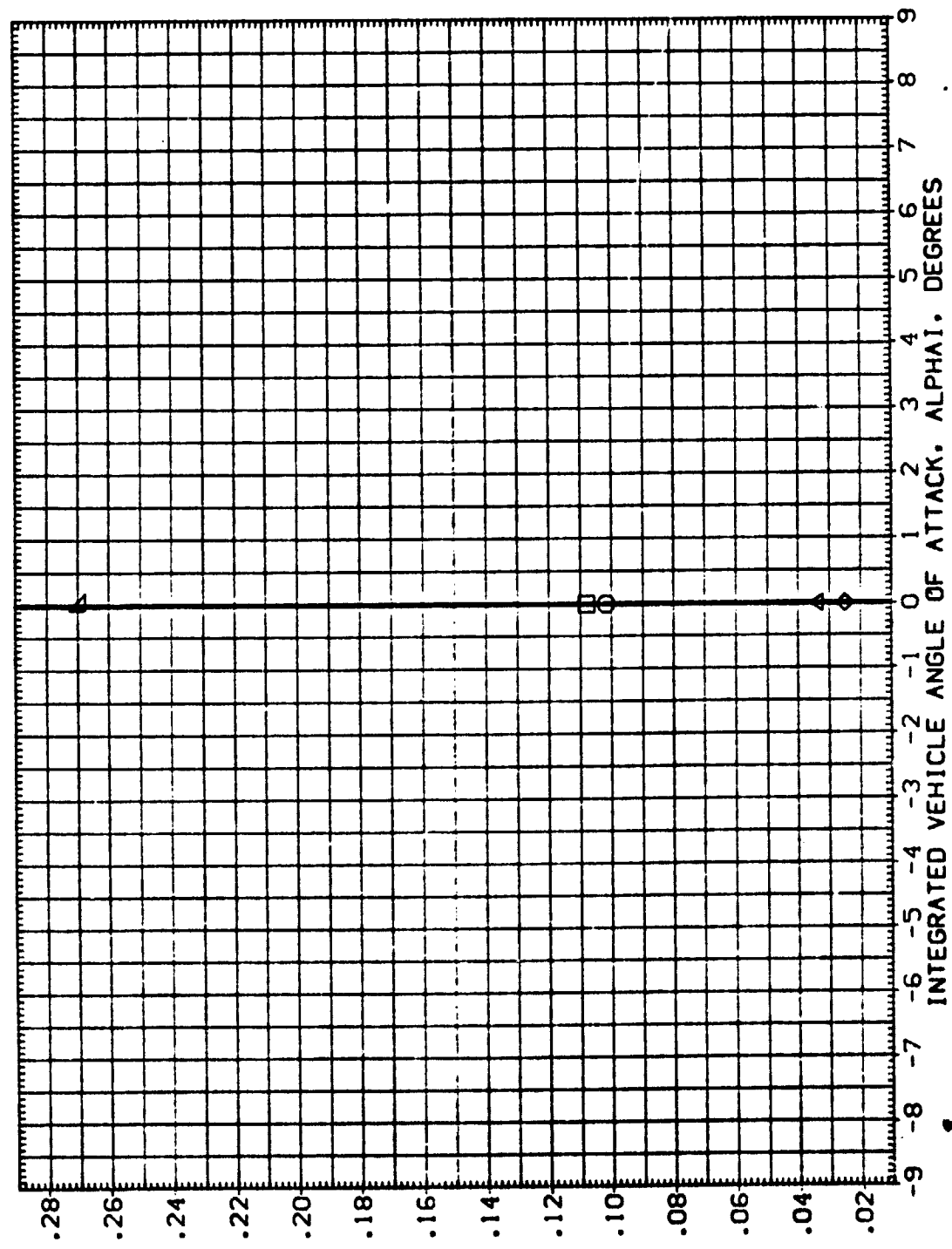


FIG. 9 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=0/0

(D)BETA1 = 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(MET040)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET140)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.000	.000	LREF 1297.0000 IN.
(MET140)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.000	.000	BREF 1297.0000 IN.
(MET140)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	.000	.000	2.000	.000	XMRP 976.0000 IN. XT
(MET140)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.000	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300



FOREBODY AXIAL FORCE COEFFICIENT, CAF

FIG. 9 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=0/0

(E)BET.1 = 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(MET040)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	.000	.000	2.000	.000	SREF 2690.0000 50.FT.
(MET140)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.000	.000	LREF 1297.0000 IN.
(METL40)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.000	.000	SREF 1297.0000 IN. XT
(METR40)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	.000	.000	2.000	.000	YMRP 976.0000 IN. YT
(MET140)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.000	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

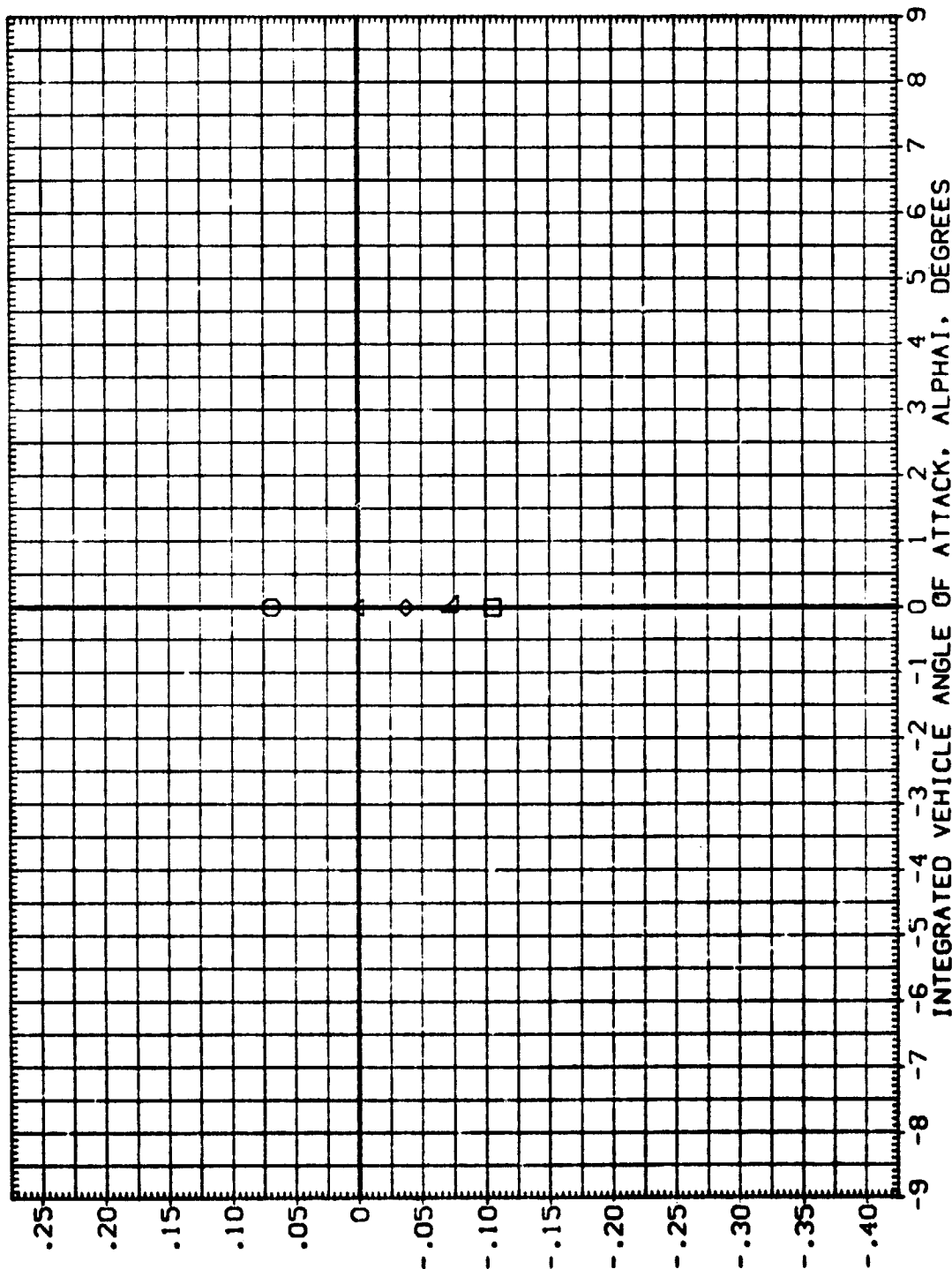


FIG. 9 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=0/0

(A)BETA1 = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(MET040)	AMES97-019(IAB1) LVAP ORB: TER-ALL HL SEALED	.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET140)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.000	.000	LREF 1297.0000 IN.
(METL40)	AMES97-019(IAB1) LVAP L-CRB - ALL HL SEALED	.000	.000	2.000	.000	BREF 1297.0000 IN.
(METR40)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	.000	.000	2.000	.000	XHRP 976.0000 IN.
(MET140)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.000	.000	YHRP 400.0000 IN.
						ZHRP 400.0000 IN.
						SCALE .0300

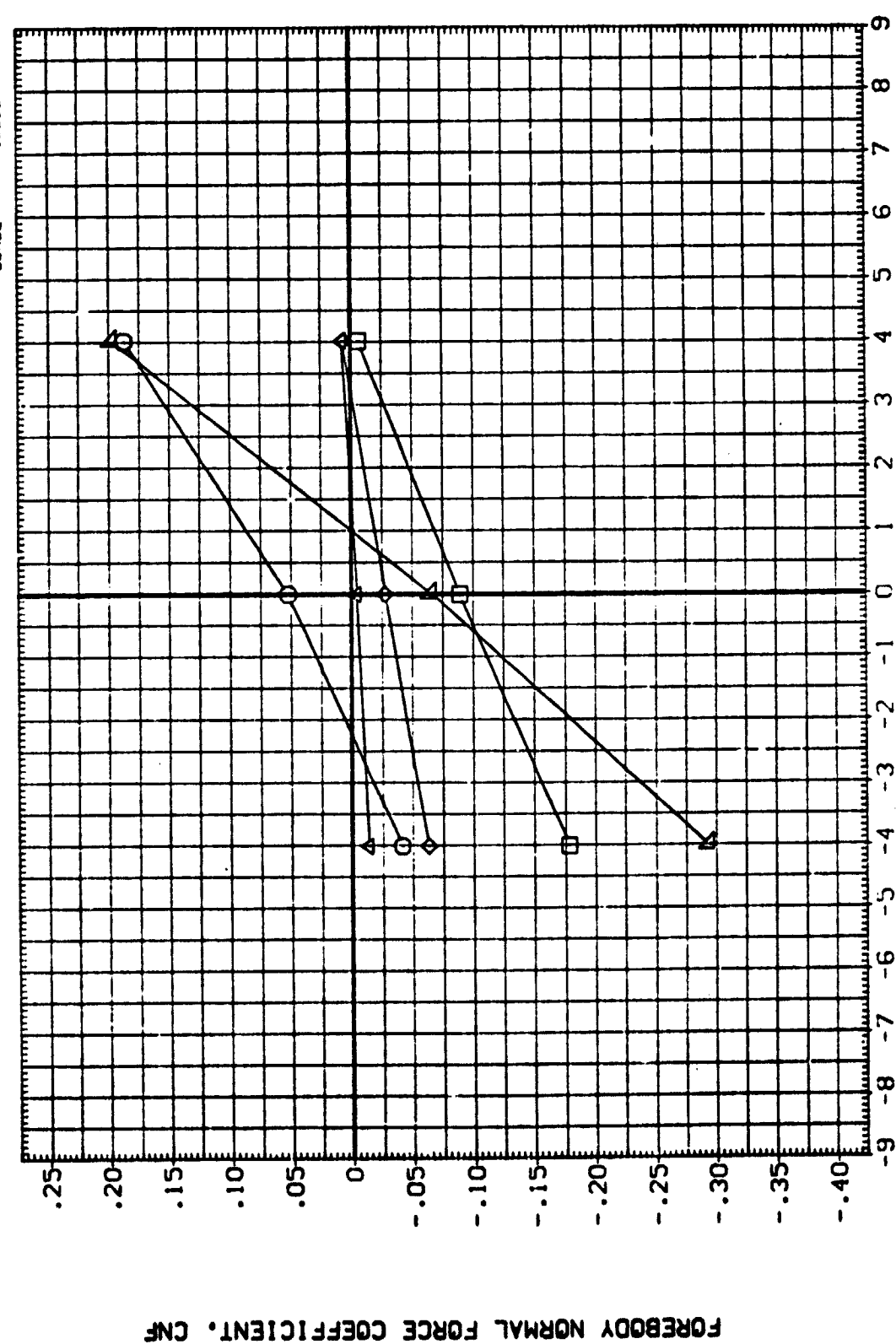
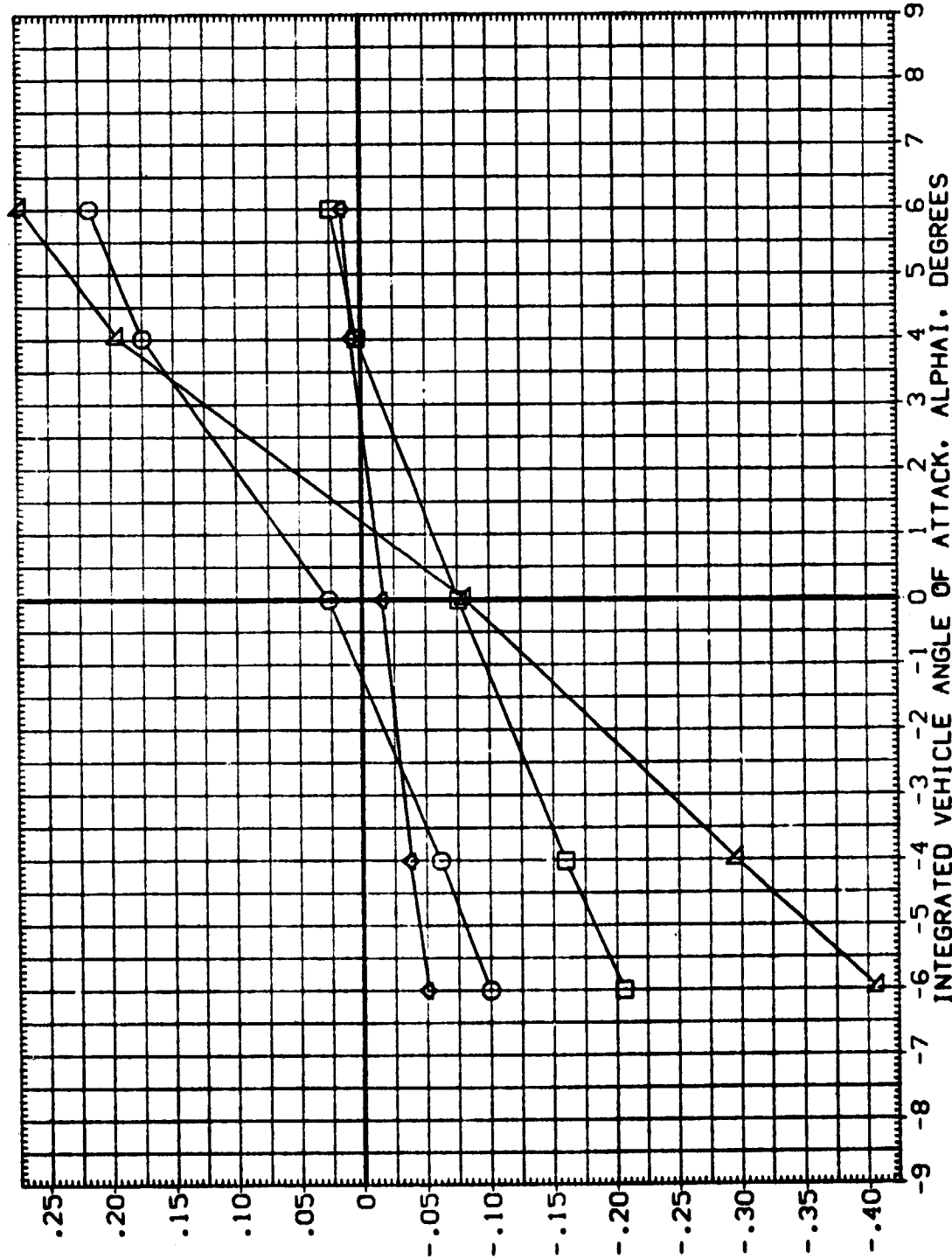


FIG. 9 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=0/0

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(MET040)	AMES97-0191(A81) LVAP	.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET140)	AMES97-0191(A81) LVAP	.000	.000	2.000	.000	LREF 1297.0000 IN.
(METL40)	AMES97-0191(A81) LVAP	.000	.000	2.000	.000	BREF 1297.0000 IN.
(METR40)	AMES97-0191(A81) LVAP	.000	.000	2.000	.000	XMRP 976.0000 IN. XT
	AMES97-0191(A81) LVAP	.000	.000	2.000	.000	YMRP 400.0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300



FOREBODY NORMAL FORCE COEFFICIENT, CNF

FIG. 9 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=0/0

REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(MET040)	AMES97-019(1A81) LVAP ORBITER-ALC HL SEALED	.000	.000	2.000	.000	SREF 2690.0000 SO.FT.
(MET140)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	.000	.000	2.000	.000	LREF 1297.0000 IN.
(MET140)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	.000	.000	2.000	.000	BREF 1297.0000 IN. XT
(MET140)	AMES97-019(1A81) LVAP R-LRB - ALL HL SEALED	.000	.000	2.000	.000	XMRP 976.0000 IN. YT
(MET140)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	.000	.000	2.000	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

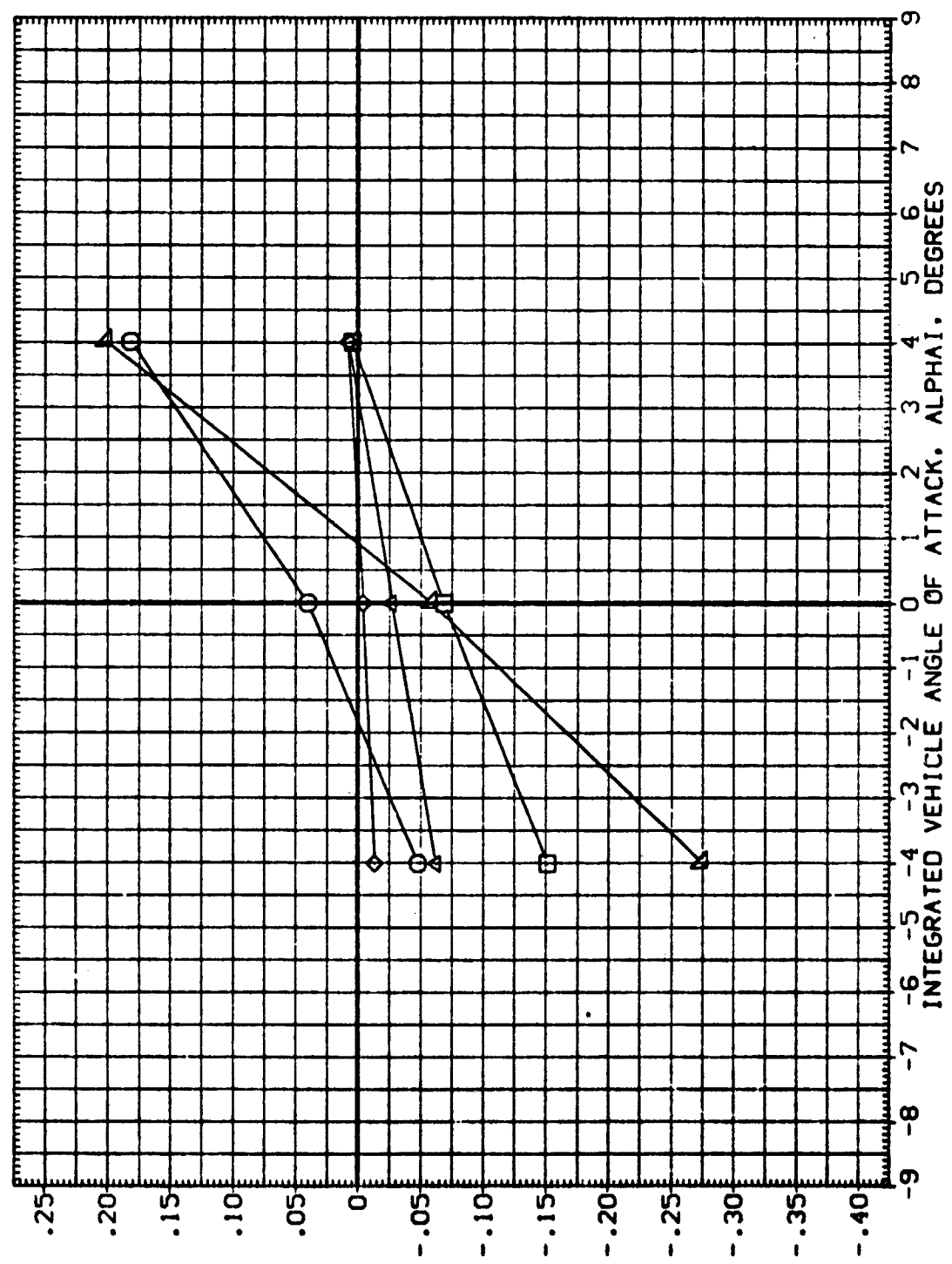


FIG. 9 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=0/0

(O)BET.1 = 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION			
(MET040)	AMES97-019(1A81) LVAP ORBITTER-ALL HL SEALED	.000	.000	2.000	.000	SREF	2690.0000	SQ.FT.	
(MET140)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	.000	.000	2.000	.000	LREF	1297.0000	IN.	
(MET140)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	.000	.000	2.000	.000	BREF	1297.0000	IN.	XT
(MET040)	AMES97-019(1A81) LVAP R-LRB ALL HL SEALED	.000	.000	2.000	.000	YMRP	976.0000	IN.	YT
(MET140)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	.000	.000	2.000	.000	ZMRP	400.0000	IN.	ZT
						SCALE	.0300		

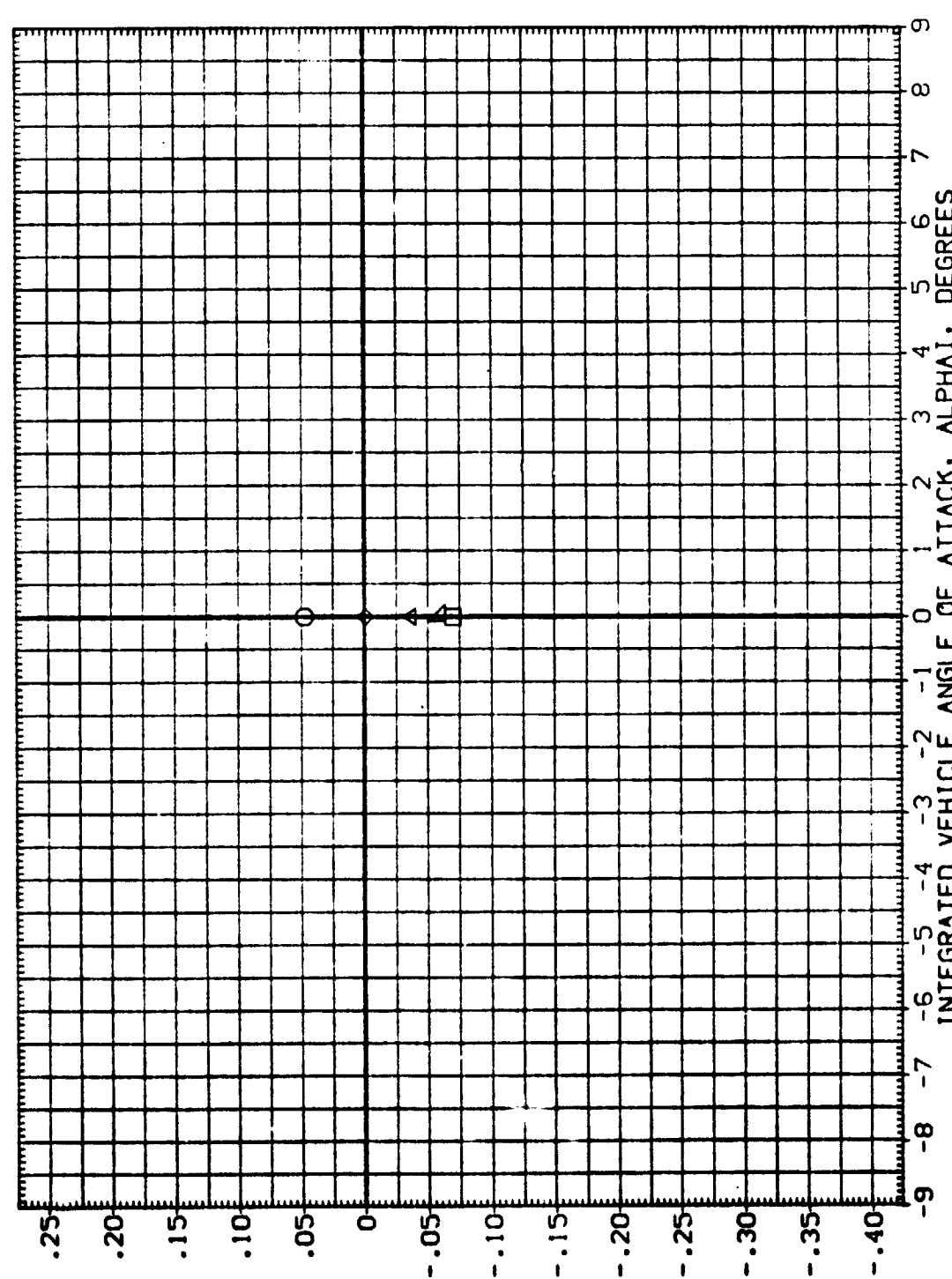


FIG. 9 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 JEV=0/0
 (E)BET 1 = 6.00 PAGE 142

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRBK	REFERENCE INFORMATION
(MET040)	AMES97-019(IAB1) LVAP	.000	.000	2.000	.000	SREF 2690.0000 SO.FT.
(MET140)	AMES97-019(IAB1) LVAP	.000	.000	2.000	.000	LREF 1297.0000 IN.
(MET140)	AMES97-019(IAB1) LVAP	.000	.000	2.000	.000	BREF 1297.0000 IN.
(MET140)	AMES97-019(IAB1) LVAP	.000	.000	2.000	.000	XMRP 976.0000 IN.
(MET140)	AMES97-019(IAB1) LVAP	.000	.000	2.000	.000	YMRP 400.0000 IN.
						SCALE .0300

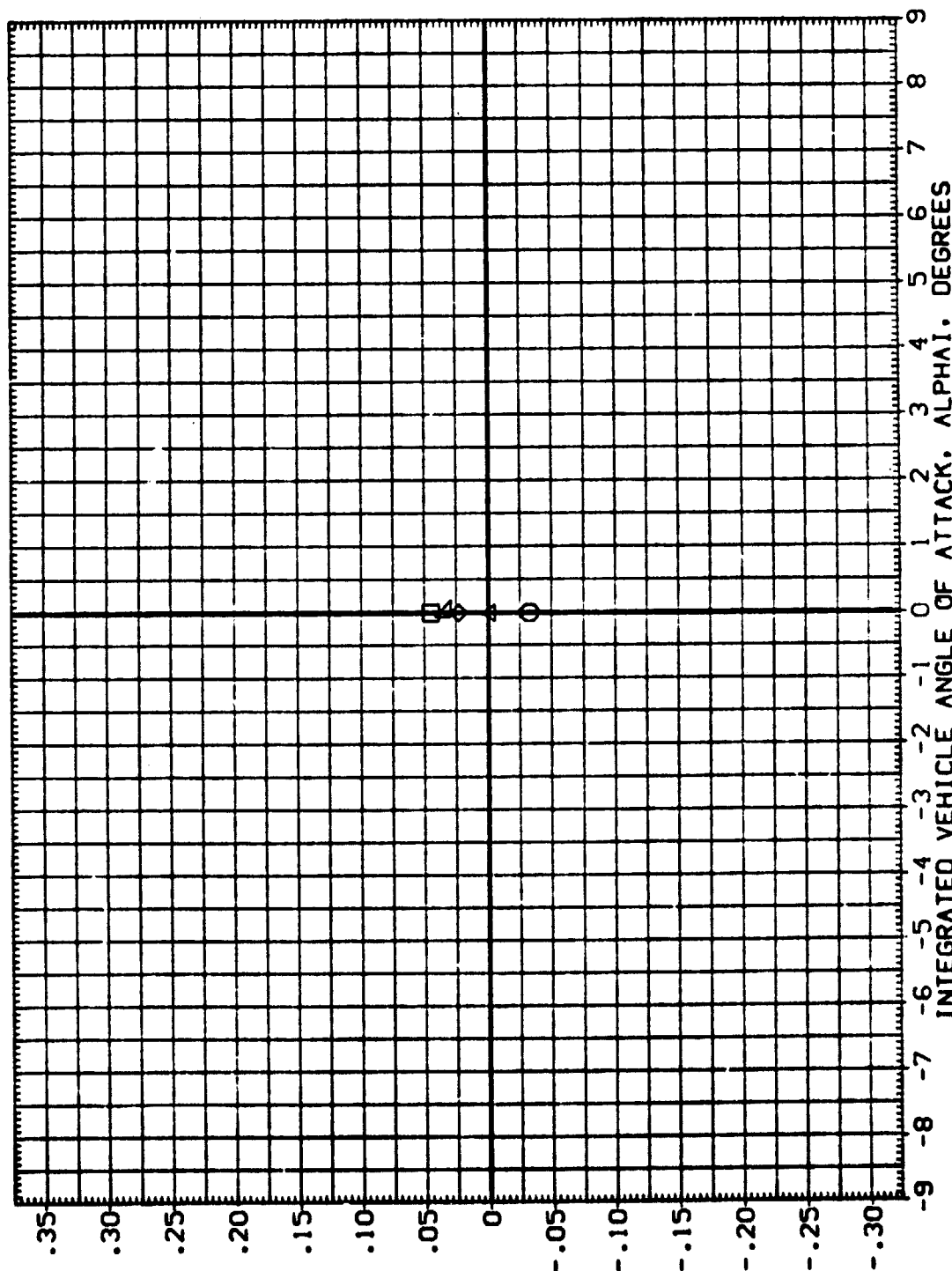


FIG. 9 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=0/0

(A)BET.1 = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(MET040)	AME597-019(1A81) LVAP ORBITER-ALL ML SEALED	.000	.000	2.000	.000	3REF 2690.0000 SO.FT.
(MET140)	AME597-019(1A81) LVAP TANK - ALL ML SEALED	.000	.000	2.000	.000	LREF 1297.0000 IN.
(METL40)	AME597-019(1A81) LVAP L-SRB - ALL ML SEALED	.000	.000	2.000	.000	BREF 1297.0000 IN.
(METR40)	AME597-019(1A81) LVAP R-LRB - ALL ML SEALED	.000	.000	2.000	.000	XMRP 976.0000 IN. XT
(MET140)	AME597-019(1A81) LVAP INT VEH ALL ML SEALED	.000	.000	2.000	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

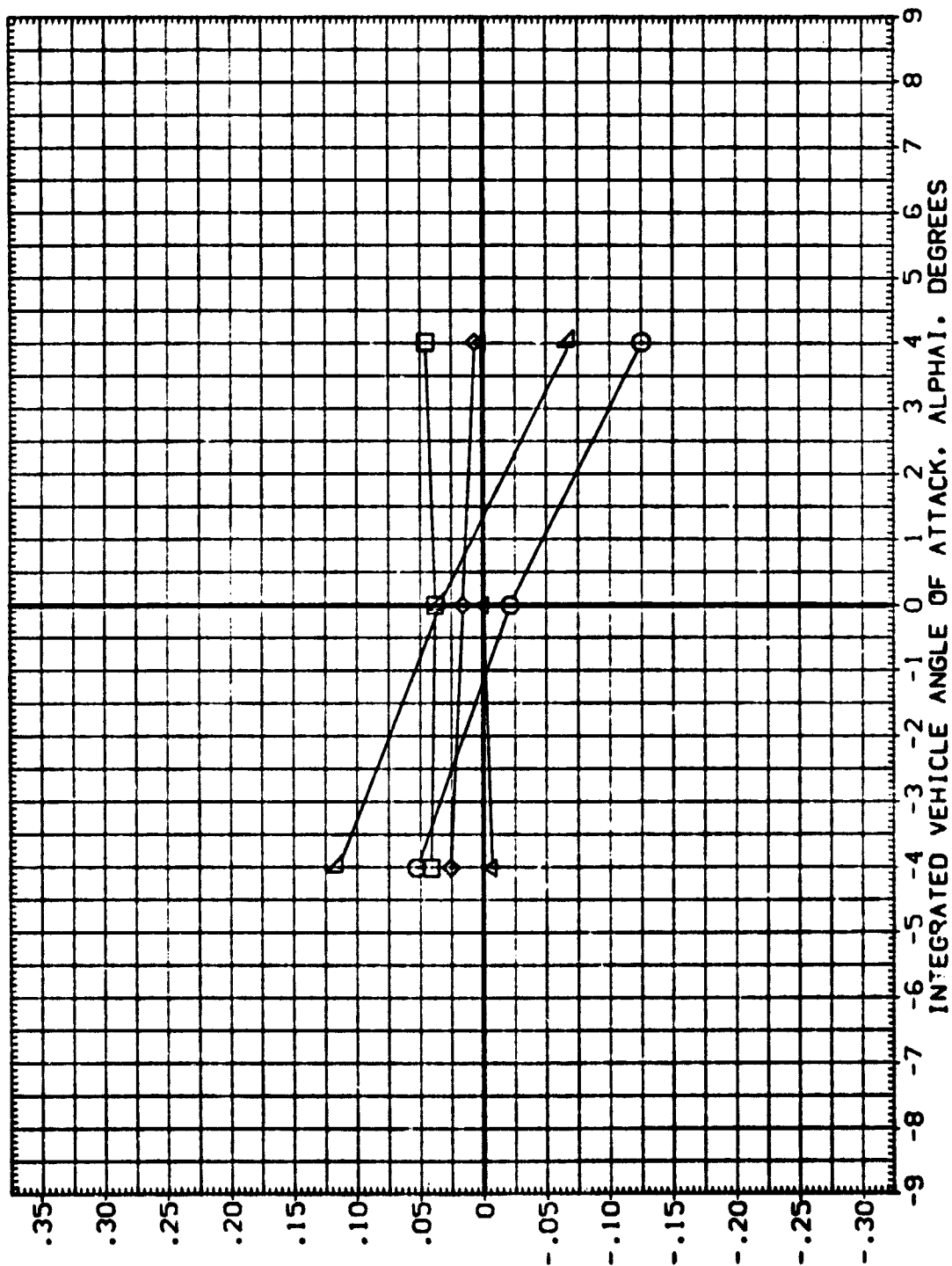
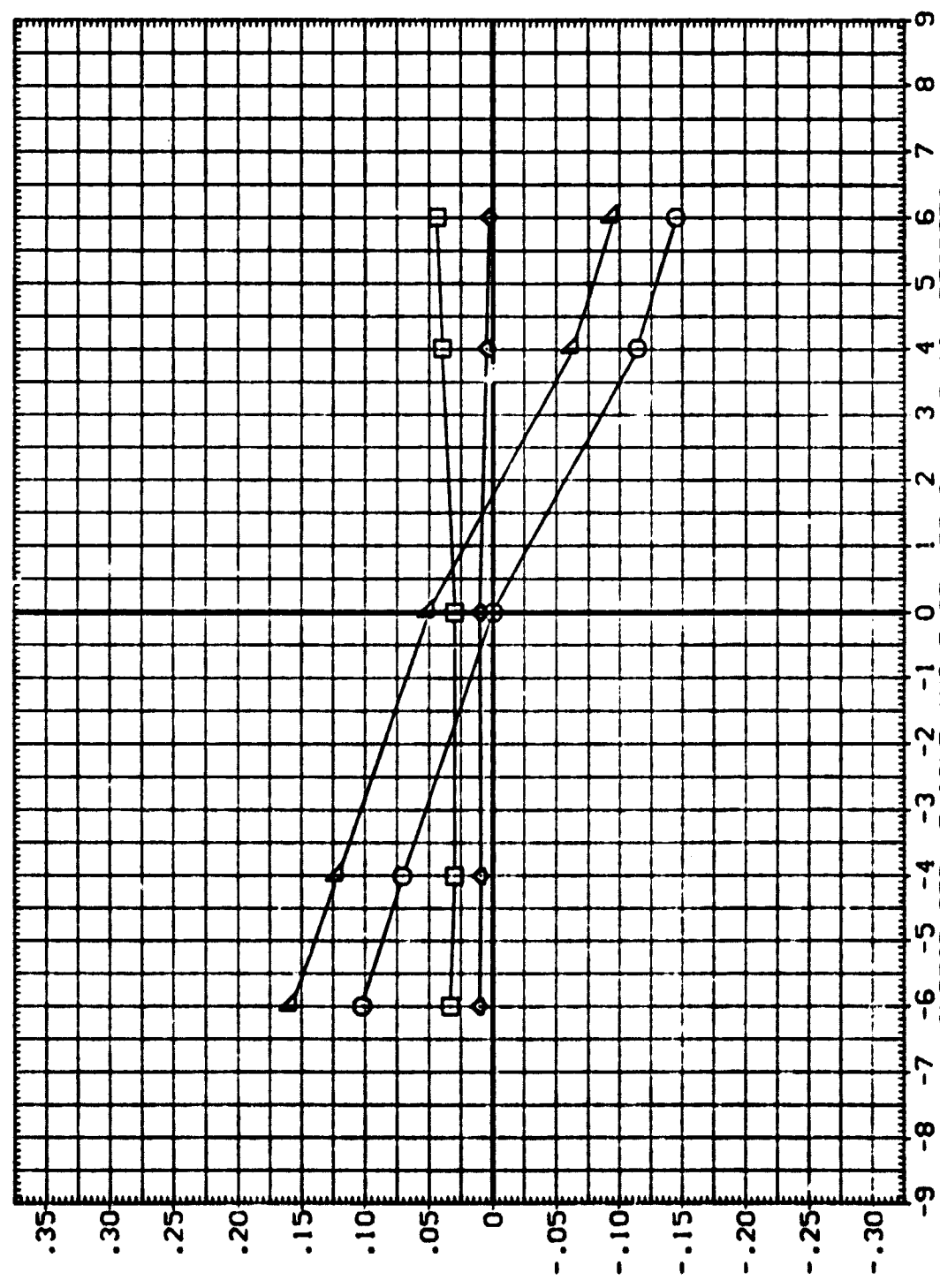


FIG. 9 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=0/0

(8)BET.1 = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(MET140)	AMES97-019(IAB1) LVAP CRB1TER-ALL HL SEALED	.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET140)	AMES97-019(IAB1) LVAP TANKS - ALL HL SEALED	.000	.000	2.000	.000	LREF 1297.0000 IN.
(MET140)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.000	.000	BREF 1297.0000 IN.
(MET140)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	.000	.000	2.000	.000	XMRP 976.0000 IN. YI
(MET140)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.000	.000	ZMRP 430.0000 IN. YI
						SCALE .0300



FOREBODY PITCHING MOMENT COEFFICIENT, CMF

FIG. 9 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=0/0

(C)BET.1 = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(NET040)	AME597-019(IAB1) LVAP ORBITTER-ALL ML SEALED	.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(NET140)	AME597-019(IAB1) LVAP TANK - ALL ML SEALED	.000	.000	2.000	.000	LREF 1297.0000 IN.
(NET140)	AME597-019(IAB1) LVAP L-SRB - ALL ML SEALED	.000	.000	2.000	.000	BREF 1297.0000 IN.
(NET140)	AME597-019(IAB1) LVAP R-LRB - ALL ML SEALED	.000	.000	2.000	.000	XMRP 976.0000 IN. XT
(NET140)	AME597-019(IAB1) LVAP INT VEH ALL ML SEALED	.000	.000	2.000	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

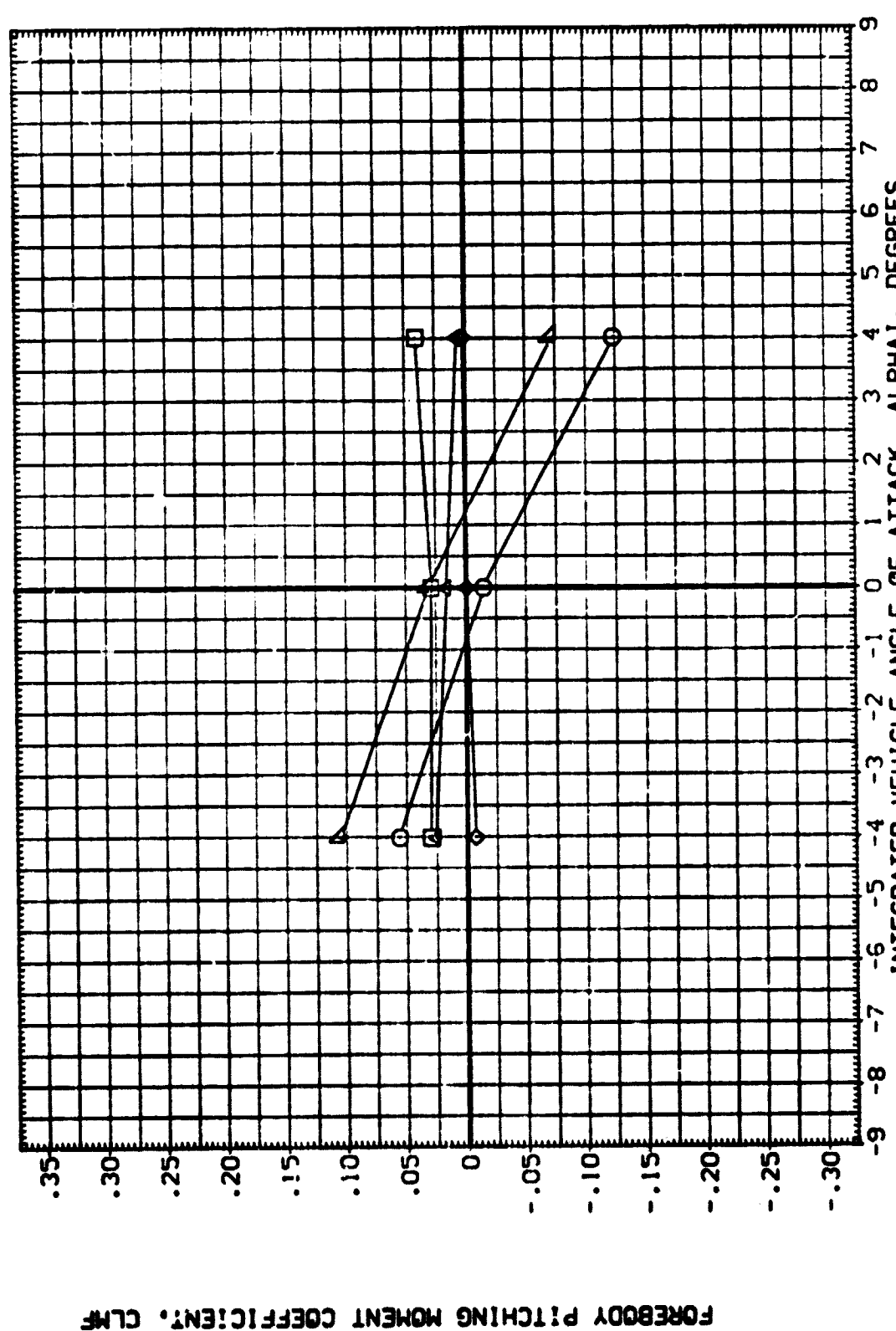
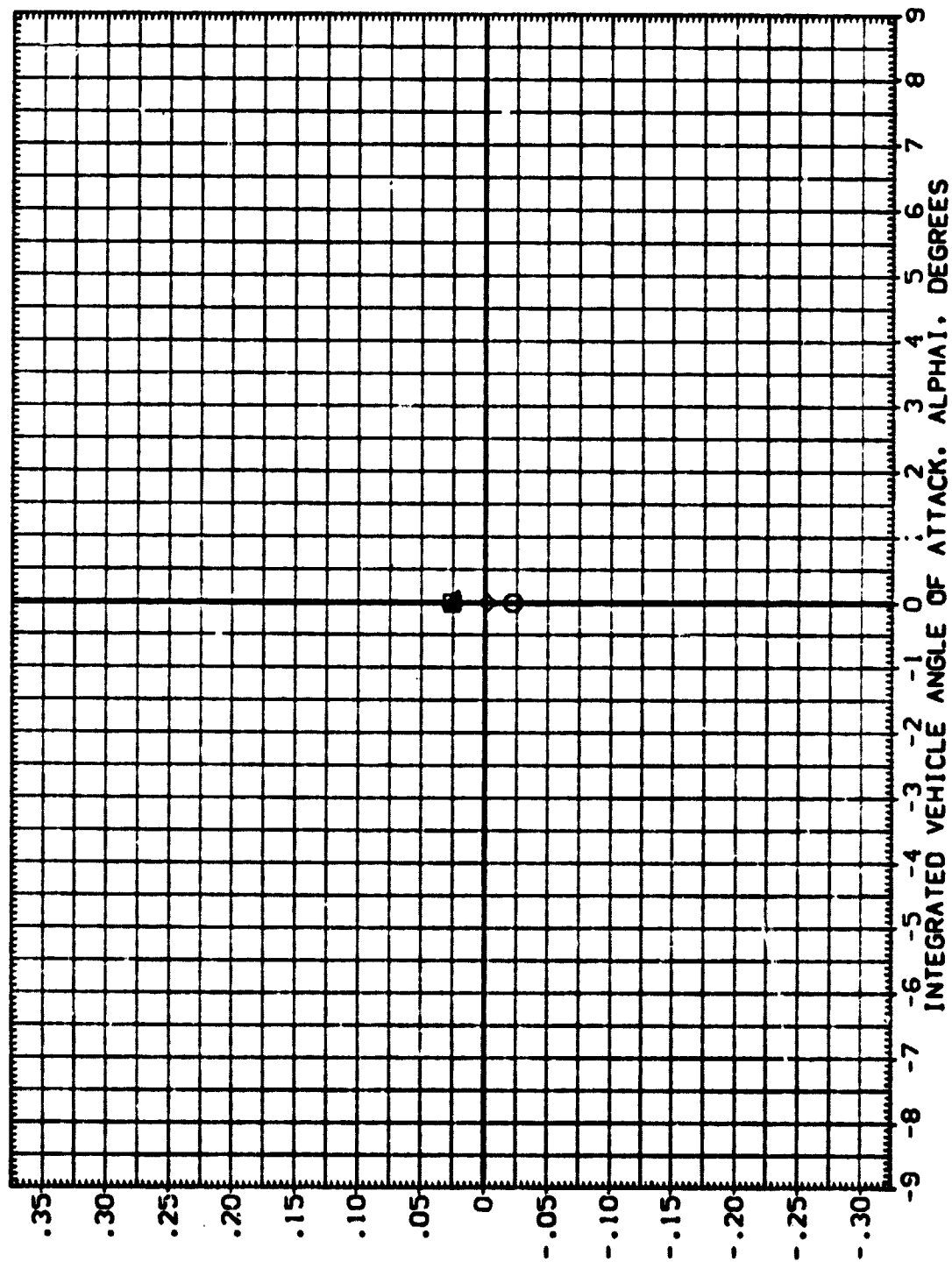


FIG. 9 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=0/0

(D)BET.1 = 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(MET040)	AMES97-0191(AB1) LVAP DRBITER-ALL ML SEALED	.000	.000	2.000	.000	SREF 2690.0000 SQ. FT.
(MET140)	AMES97-0191(AB1) LVAP TANK - ALL ML SEALED	.000	.000	2.000	.000	LREF 1297.0000 IN.
(METL40)	AMES97-0191(AB1) LVAP L-SRB - ALL ML SEALED	.000	.000	2.000	.000	BREF 1297.0000 IN.
(METR40)	AMES97-0191(AB1) LVAP R-LRB - ALL ML SEALED	.000	.000	2.000	.000	YMRP 976.0000 IN. XT
(MET140)	AMES97-0191(AB1) LVAP INT VEN ALL ML SEALED	.000	.000	2.000	.000	ZMRP 400.0000 IN. YT
						SCALE .0300



FOREBODY PITCHING MOMENT COEFFICIENT, C_m

FIG. 9 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=2.0$ $DEV=0/0$

(E)BET.1 = 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(MET100)	AMES97-013C (AB1) LVAP ORBITTER-ALL HL SEALED	.000	.000	2.000	.000	SREF 2590.0000 SO.FT.
(MET140)	AMES97-013C (AB1) LVAP TANK - ALL HL SEALED	.000	.000	2.000	.000	LREF 1297.0000 IN.
(MET140)	AMES97-013C (AB1) LVAP L-SPB - ALL HL SEALED	.000	.000	2.000	.000	BREF 1297.0000 IN.
(MET140)	AMES97-013C (AB1) LVAP R-SPB - ALL HL SEALED	.000	.000	2.000	.000	XMRP 976.0000 IN. XT
(MET140)	AMES97-013C (AB1) LVAP INT VEN ALL HL SEALED	.000	.000	2.000	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

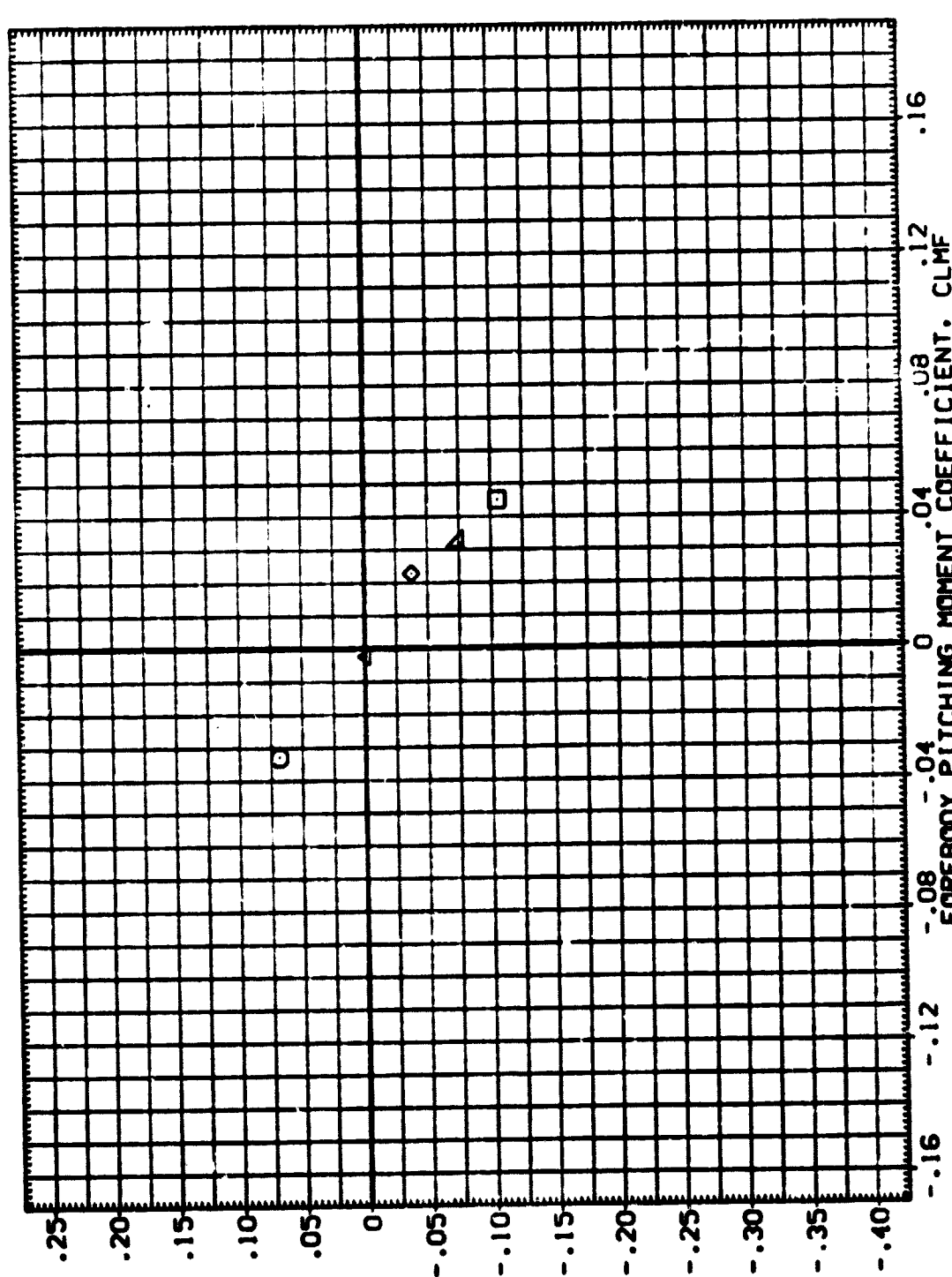


FIG. 9 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=0/0
 (A) BET. 1 = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPORWK	REFERENCE INFORMATION
(MET040)	AME597-019(IAB1) LVAP	.000	.000	2.000	.000	SREF 2690.0000 SO.FT.
(MET140)	AME597-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.000	.000	LREF 1297.0000 IN.
(MET140)	AME597-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.000	.000	BREF 1297.0000 IN.
(MET140)	AME597-019(IAB1) LVAP R-LRB - ALL HL SEALED	.000	.000	2.000	.000	TRBP 976.0000 IN.
(MET140)	AME597-019(IAB1) LVAP INT VEM ALL HL SEALED	.000	.000	2.000	.000	TYT 400.0000 IN.
						SCALE .0300

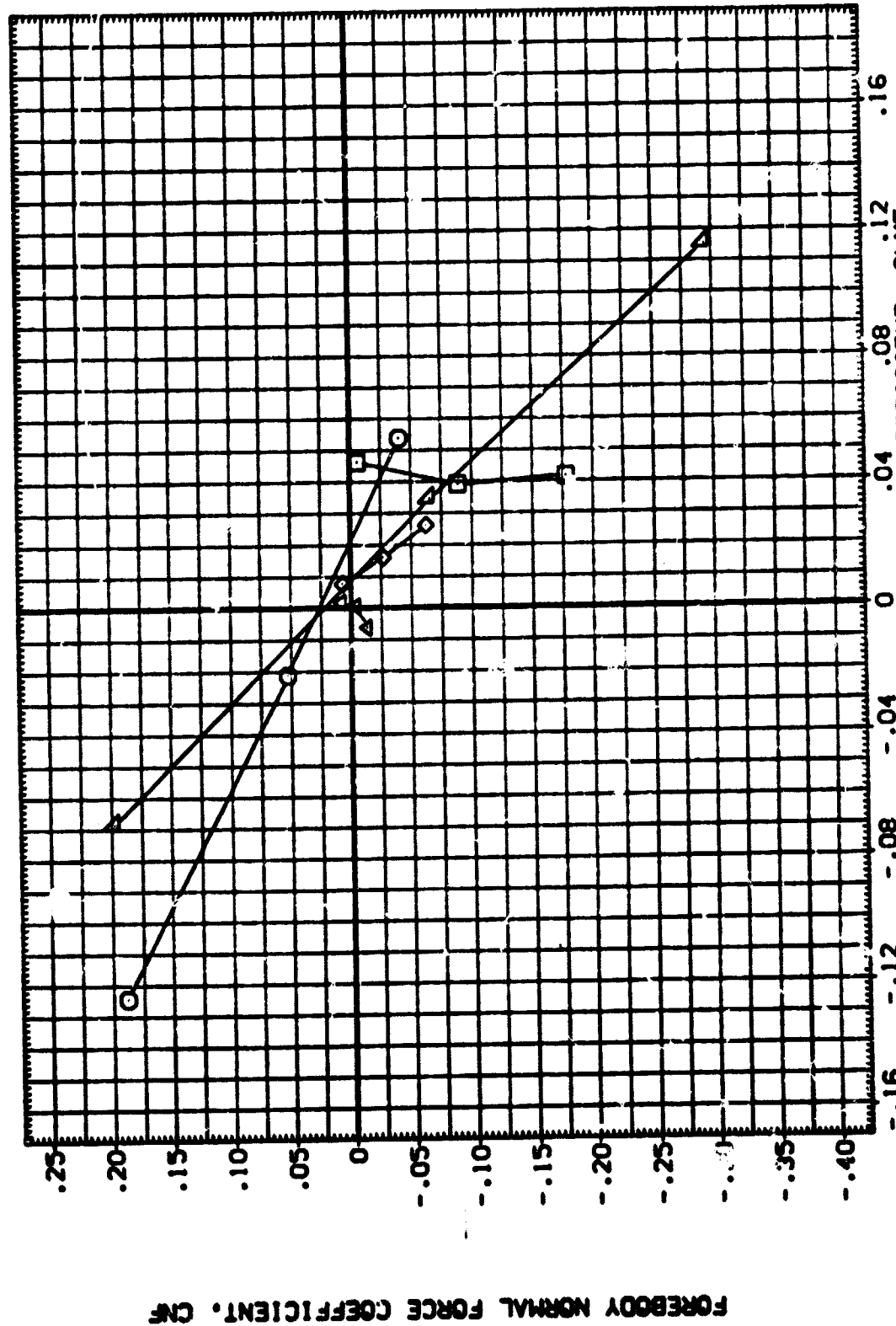


FIG. 9 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=0/0

(BREF1) = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(MET040)	AVES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET140)	AVES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.000	.000	LREF 1297.0000 IN.
(MET140)	AVES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.000	.000	BREF 1297.0000 IN.
(MET140)	AVES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	.000	.000	2.000	.000	XMRP 976.0000 IN.
(MET140)	AVES97-019(IAB1) LVAP INT VEN ALL HL SEALED	.000	.000	2.000	.000	YMRP .0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

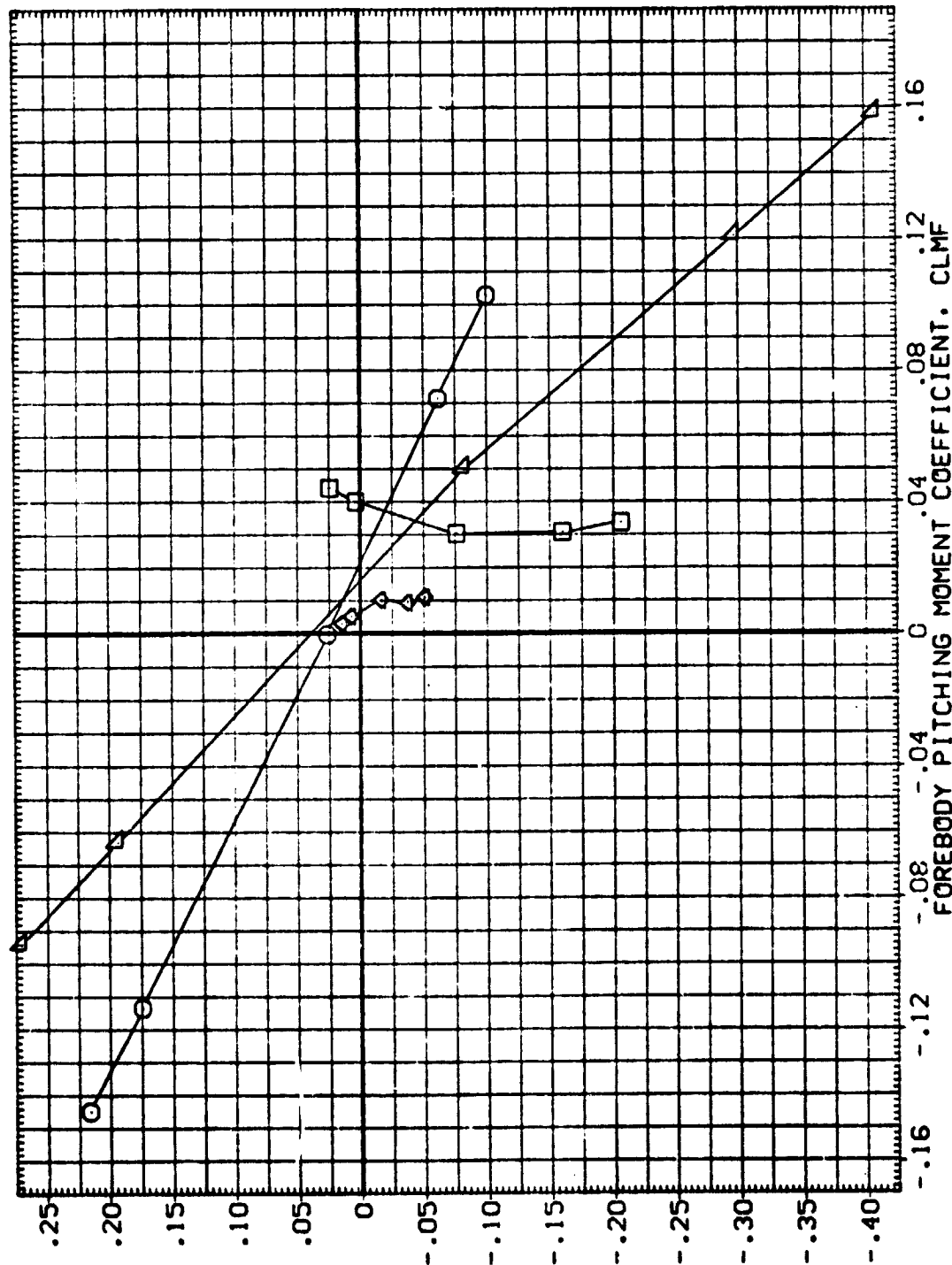


FIG. 9 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=0/0

(CBETA) = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(MET040)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET140)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.000	.000	LREF 1297.0000 IN.
(METL40)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.000	.000	BREF 1297.0000 IN.
(METR40)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	.000	.000	2.000	.000	XMRP 976.0000 IN.
(MET140)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.000	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

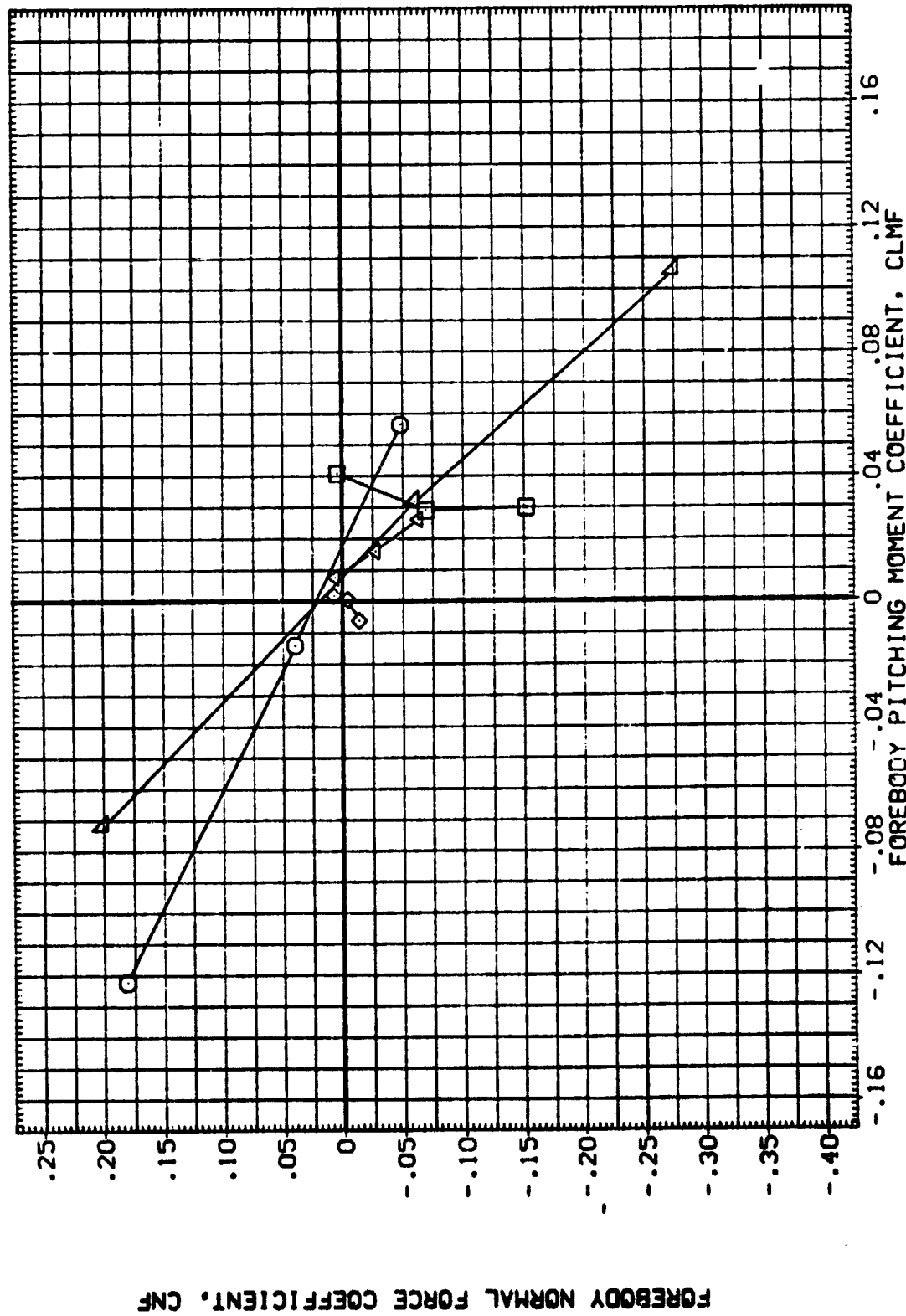


FIG. 9 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=0/0

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(MET040)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET140)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.000	.000	LREF 1297.0000 IN.
(METL40)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.000	.000	BREF 1297.0000 IN.
(MET040)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	.000	.000	2.000	.000	XGRP 976.0000 IN.
(MET140)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.000	.000	YGRP 400.0000 IN.
						ZGRP 400.0000 IN.
						SCALE .0300

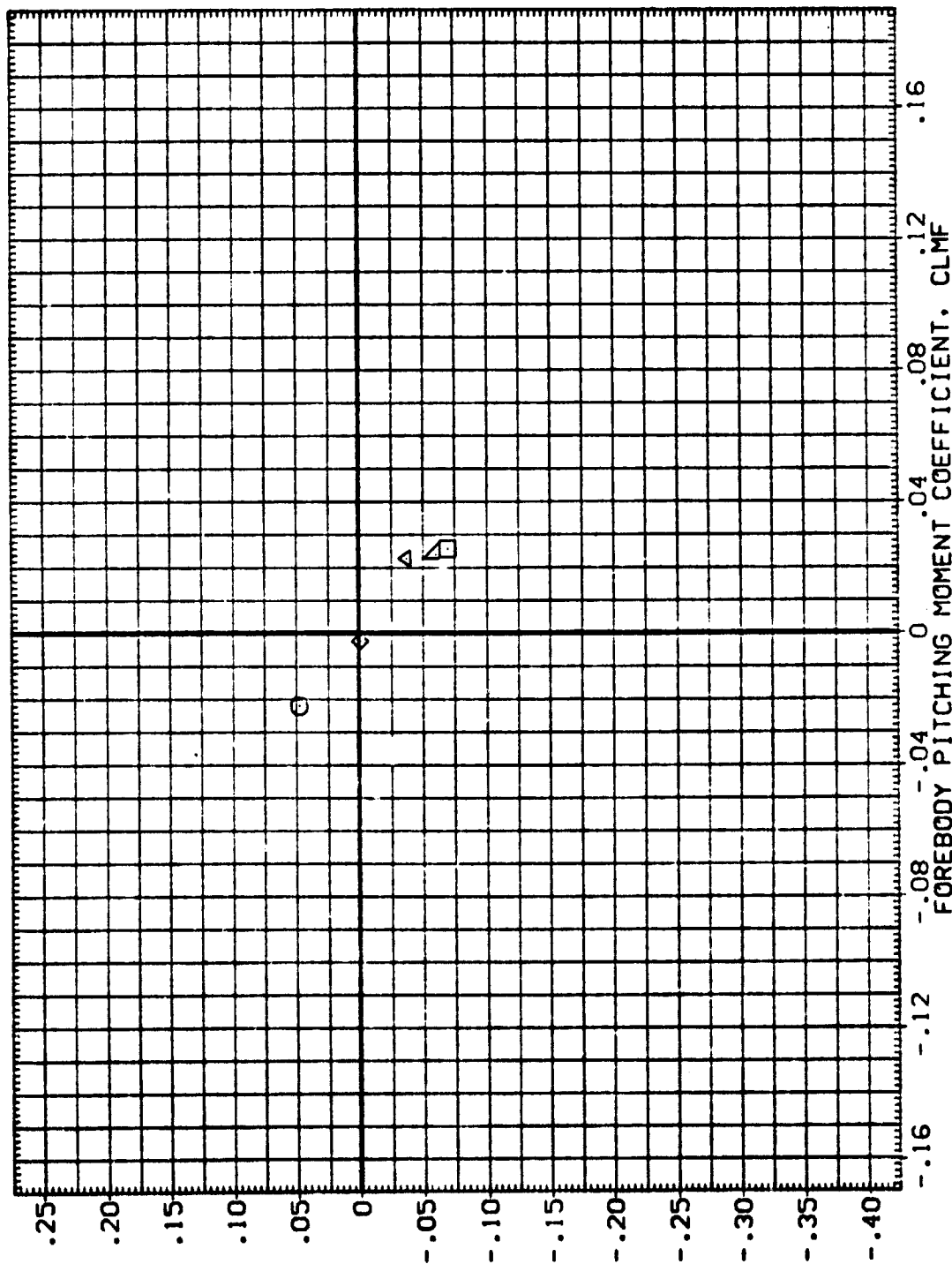
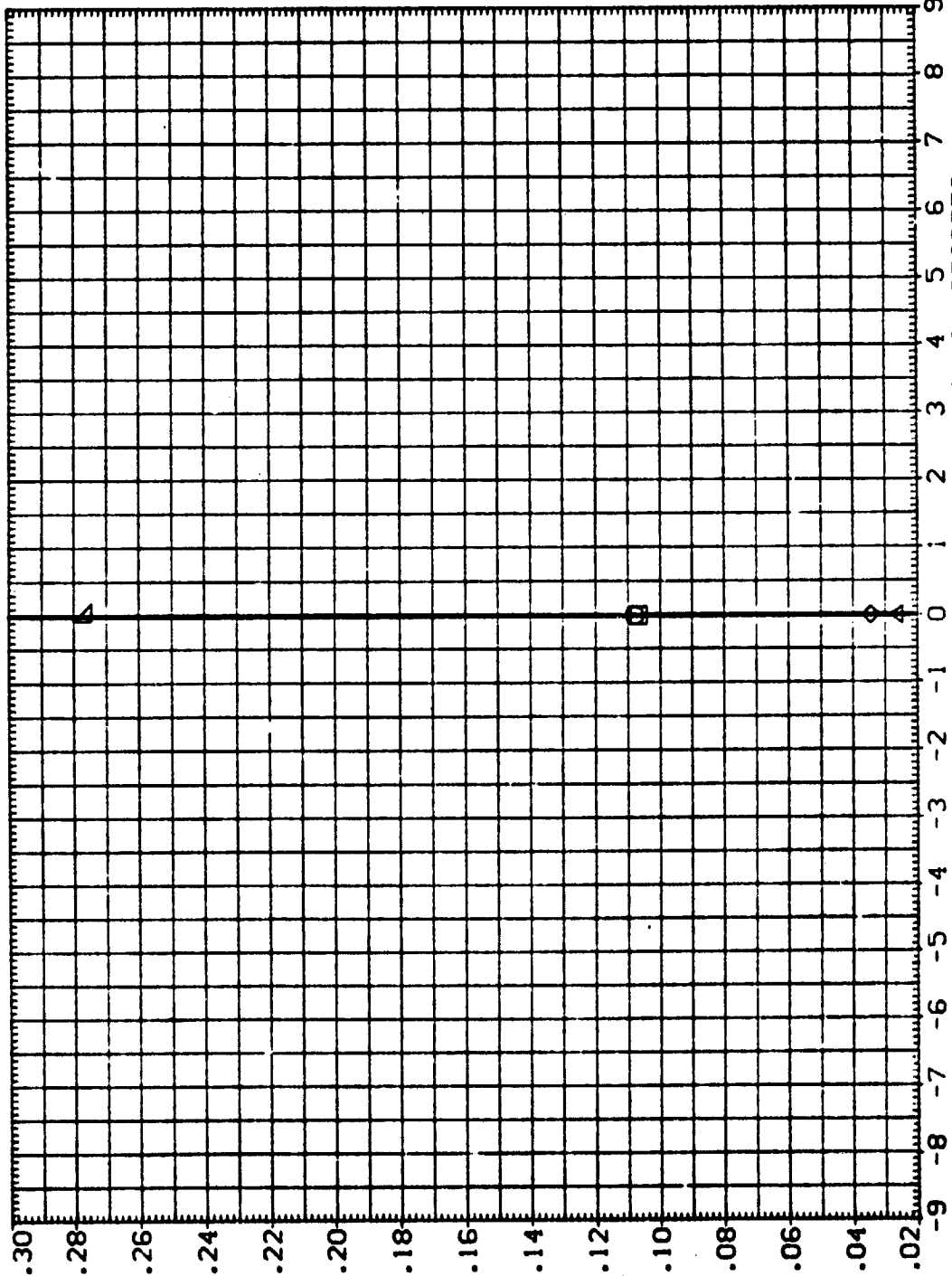


FIG. 9 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=0/0

(E)BET.1 = 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(MET044)	AMES97-019(TAB1) LVAP ORBITTER-ALL HL SEALED	8.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET144)	AMES97-019(TAB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(MET144)	AMES97-019(TAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.000	.000	BREF 1297.0000 IN.
(MET144)	AMES97-019(TAB1) LVAP R-LRB - ALL HL SEALED	8.000	.000	2.000	.000	XMRP 976.0000 IN.
(MET144)	AMES97-019(TAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.000	.000	YMRP 400.0000 IN.
						ZMRP .0300
						SCALE



FOREBODY AXIAL FORCE COEFFICIENT, CAF

FIG. 10 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0

(A)BET.1 = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(NET044)	AMES97-019(1A81) LVAP ORBITTER-ALL HL SEALED	8.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(NET144)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(NETL44)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.000	.000	SREF 1297.0000 IN.
(NETR44)	AMES97-019(1A81) LVAP R-LRB ALL HL SEALED	8.000	.000	2.000	.000	YMRP 976.0000 IN. XT
(NET144)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	.000	2.000	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

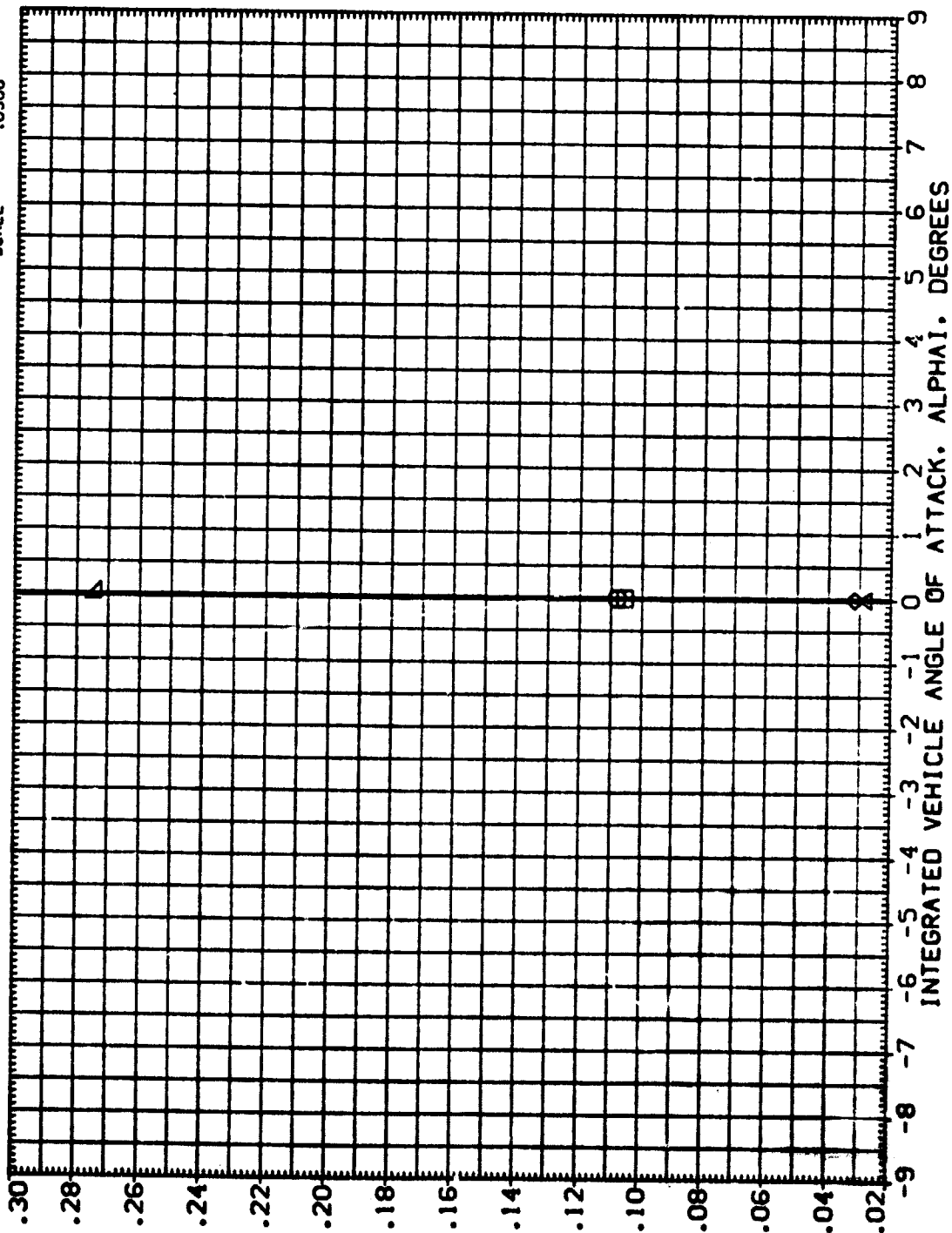


FIG. 10 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0

(C)BET.1 = -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(MET044)	AMES97-019C(1A81) LVAP ORBITER-ALL HL SEALED	8.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET144)	AMES97-019C(1A81) LVAP TANK - ALL HL SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(MET144)	AMES97-019C(1A81) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.000	.000	BREF 1297.0000 IN.
(MET144)	AMES97-019C(1A81) LVAP R-LRB ALL HL SEALED	8.000	.000	2.000	.000	XMRP 976.0000 IN. XT
(MET144)	AMES97-019C(1A81) LVAP INT VEH ALL HL SEALED	8.000	.000	2.000	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

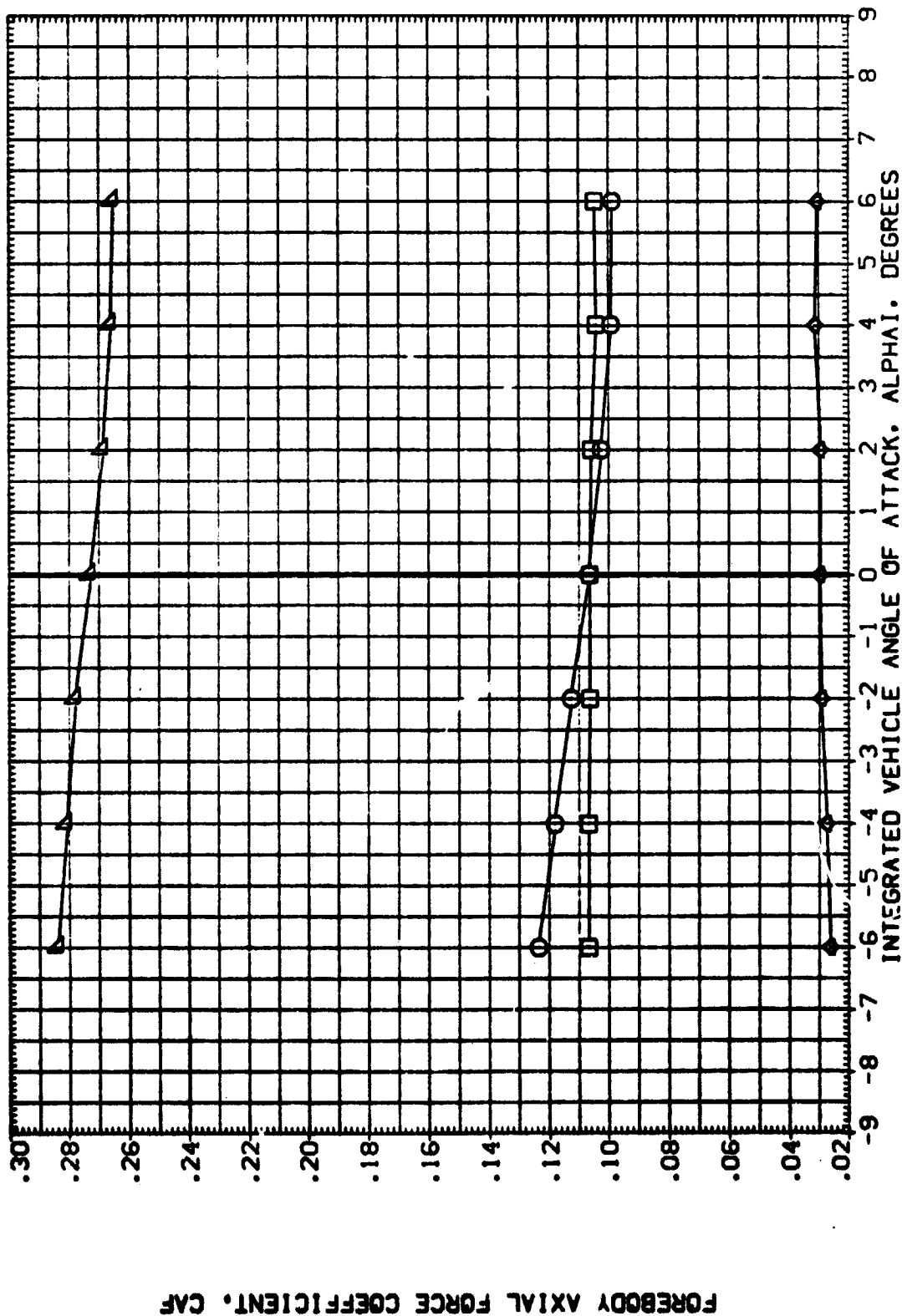
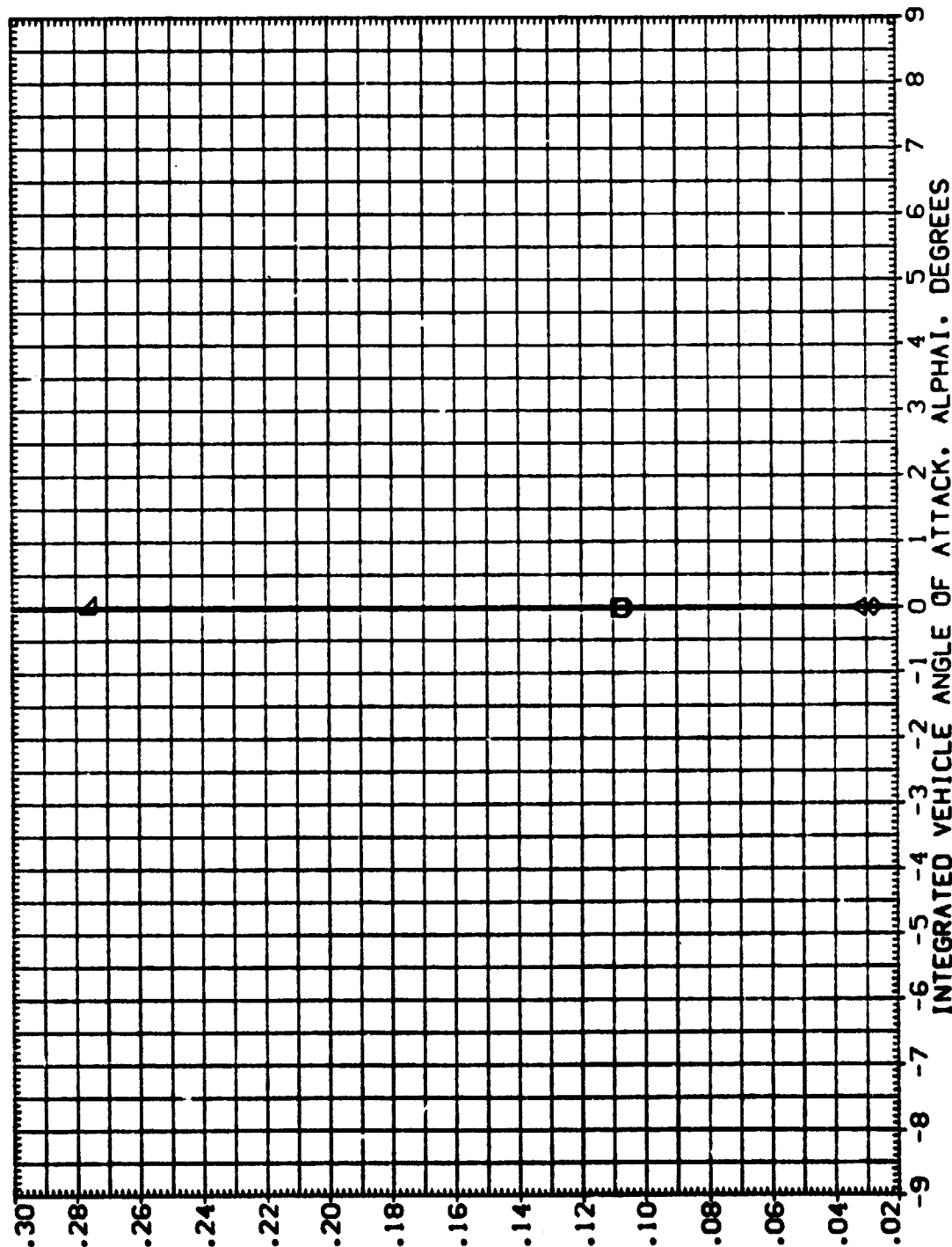


FIG. 10 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0

(O)BET 1 = .00

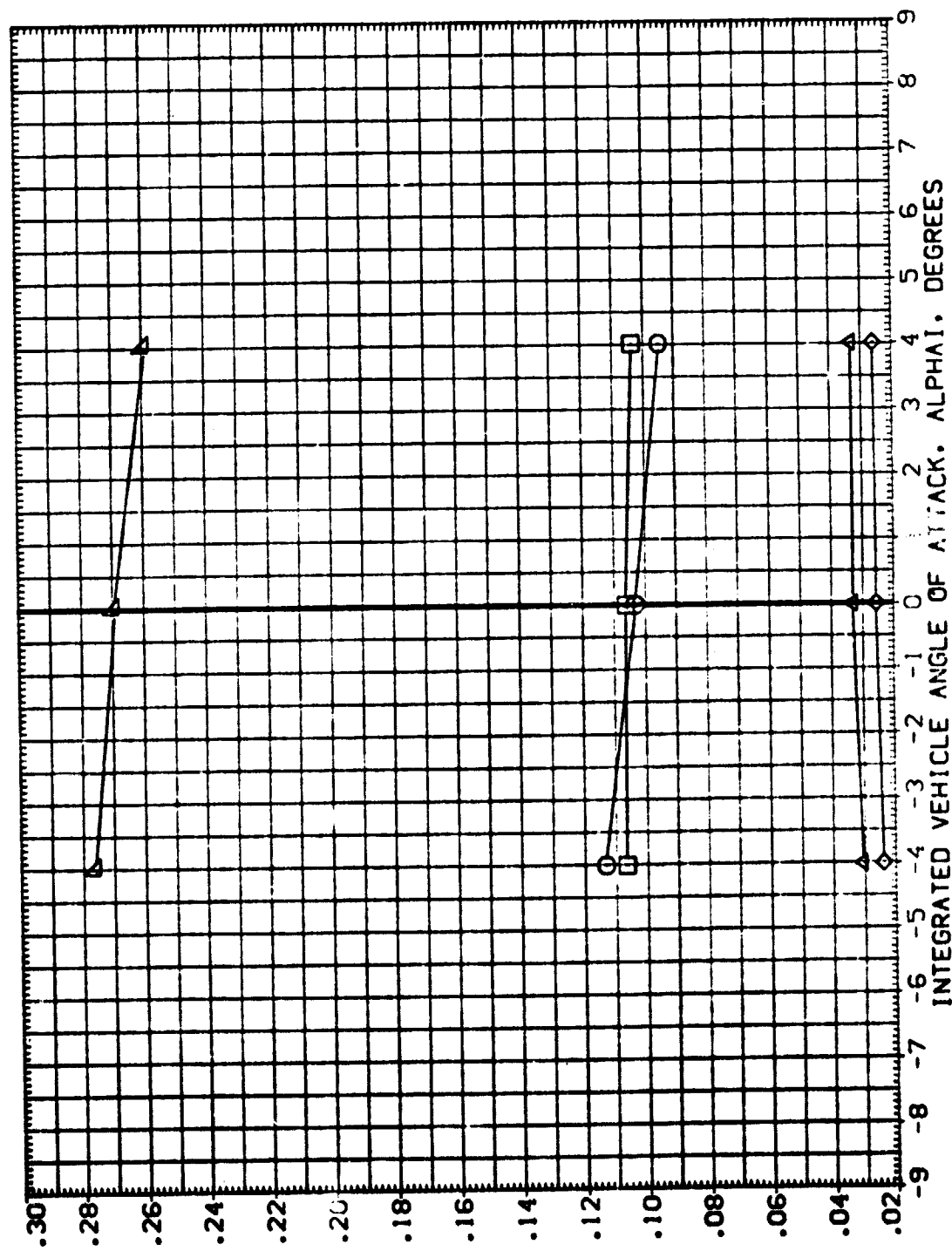
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRBK	REFERENCE INFORMATION
(MET044)	AWES97-019(IAB1) LVAP ORBITTER-ALL HL SEALED	8.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET144)	AWES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(MET144)	AWES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.000	.000	BREF 1297.0000 IN.
(MET144)	AWES97-019(IAB1) LVAP R-LRB ALL HL SEALED	8.000	.000	2.000	.000	XMRP 976.0000 IN. XT
(MET144)	AWES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.000	.000	YMRP 400.0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300



FOREBODY AXIAL FORCE COEFFICIENT, CAF

FIG. 10 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0

DATA SET SYMOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(MET044)	AMES97-0191(A81) LVAP ORBITER-ALL M _L SEALED	8.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET144)	AMES97-0191(A81) LVAP TANK - ALL M _L SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(METL44)	AMES97-0191(A81) LVAP L-SRB - ALL M _L SEALED	8.000	.000	2.000	.000	BREF 1297.0000 IN.
(METR44)	AMES97-0191(A81) LVAP R-LRB - ALL M _L SEALED	8.000	.000	2.000	.000	XMRP 976.0000 IN. XT
(MET144)	AMES97-0191(A81) LVAP INT VEH ALL M _L SEALED	8.000	.000	2.000	.000	ZMRP 400.0000 IN. YT
						SCALE .0300



FOREBODY AXIAL FORCE COEFFICIENT, CAF

FIG. 10 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0

(F)BET.1 = 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(MET044)	AMES37-019(1A81) LVAP ORBITER-ALL ML SEALED	8.000	.000	2.000	.000	SRF 2690.0000 SQ.FT.
(MET144)	AMES37-019(1A81) LVAP TANK - ALL ML SEALED	8.000	.000	2.000	.000	LRF 1297.0000 IN.
(MET144)	AMES37-019(1A81) LVAP L-SRB - ALL ML SEALED	8.000	.000	2.000	.000	BRF 1297.0000 IN. XT
(MET144)	AMES37-019(1A81) LVAP R-LRB ALL ML SEALED	8.000	.000	2.000	.000	YHRP 976.0000 IN. YT
(MET144)	AMES37-019(1A81) LVAP INT VEH ALL ML SEALED	8.000	.000	2.000	.000	ZHRP 400.0000 IN. ZT
						SCALE .0300

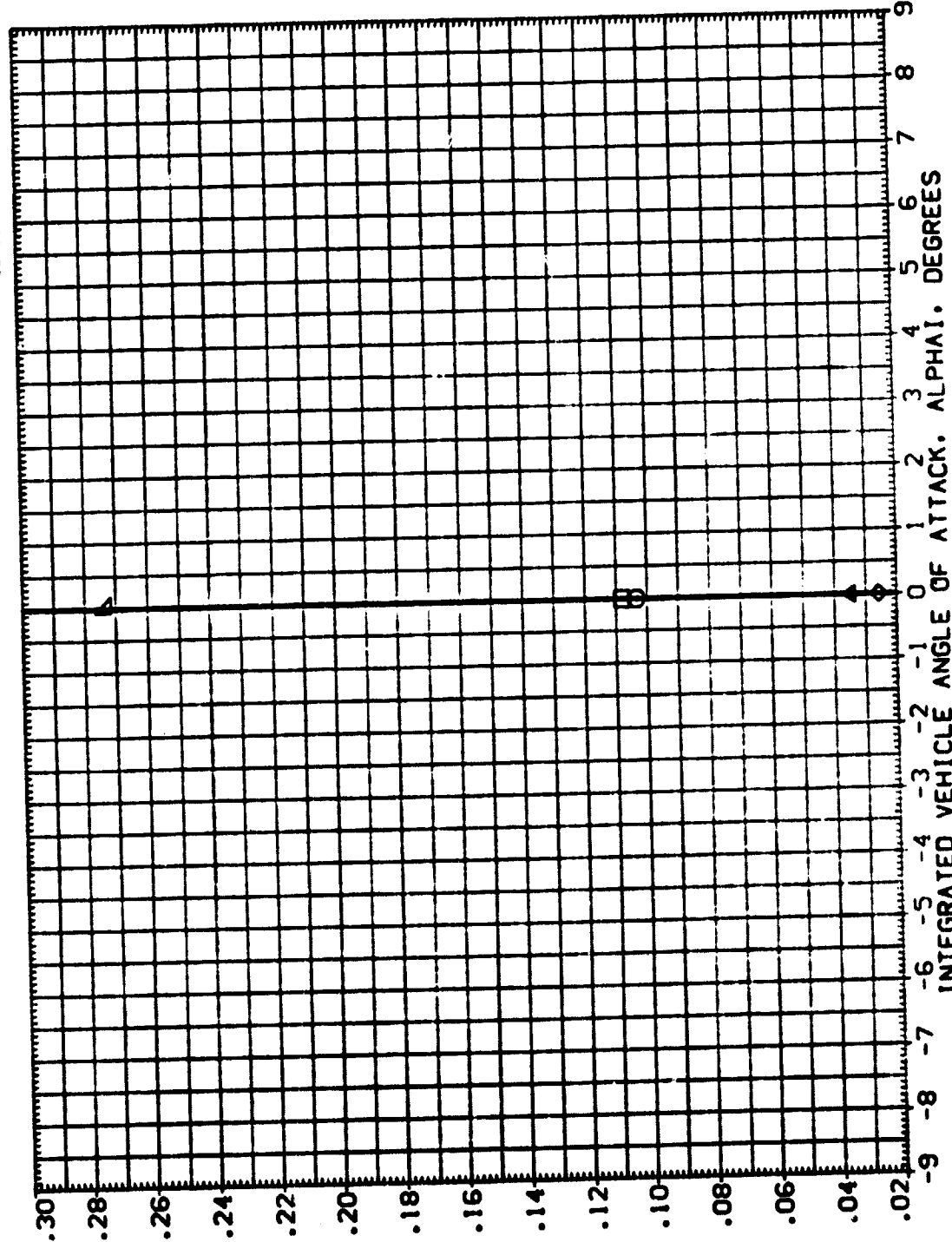


FIG. 10 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0

FOREBODY NORMAL FORCE COEFFICIENT, CNF

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(NET044)	AWES97-019(IAB1) LVAP ORBITTER-ALL M. SEALED	8.000	.000	2.000	.000	SREF 2690.0000 SO.FT.
(NET144)	AWES97-019(IAB1) LVAP TANK - ALL M. SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(NETL44)	AWES97-019(IAB1) LVAP L-SRB - ALL M. SEALED	8.000	.000	2.000	.000	BREF 1297.0000 IN. XI
(NETR44)	AWES97-019(IAB1) LVAP R-LRB - ALL M. SEALED	8.000	.000	2.000	.000	XMRP 976.0000 IN. VI
(NETI44)	AWES97-019(IAB1) LVAP INT VEN ALL M. SEALED	8.000	.000	2.000	.000	ZMRP 400.0000 IN. ZI
						SCALE .0300

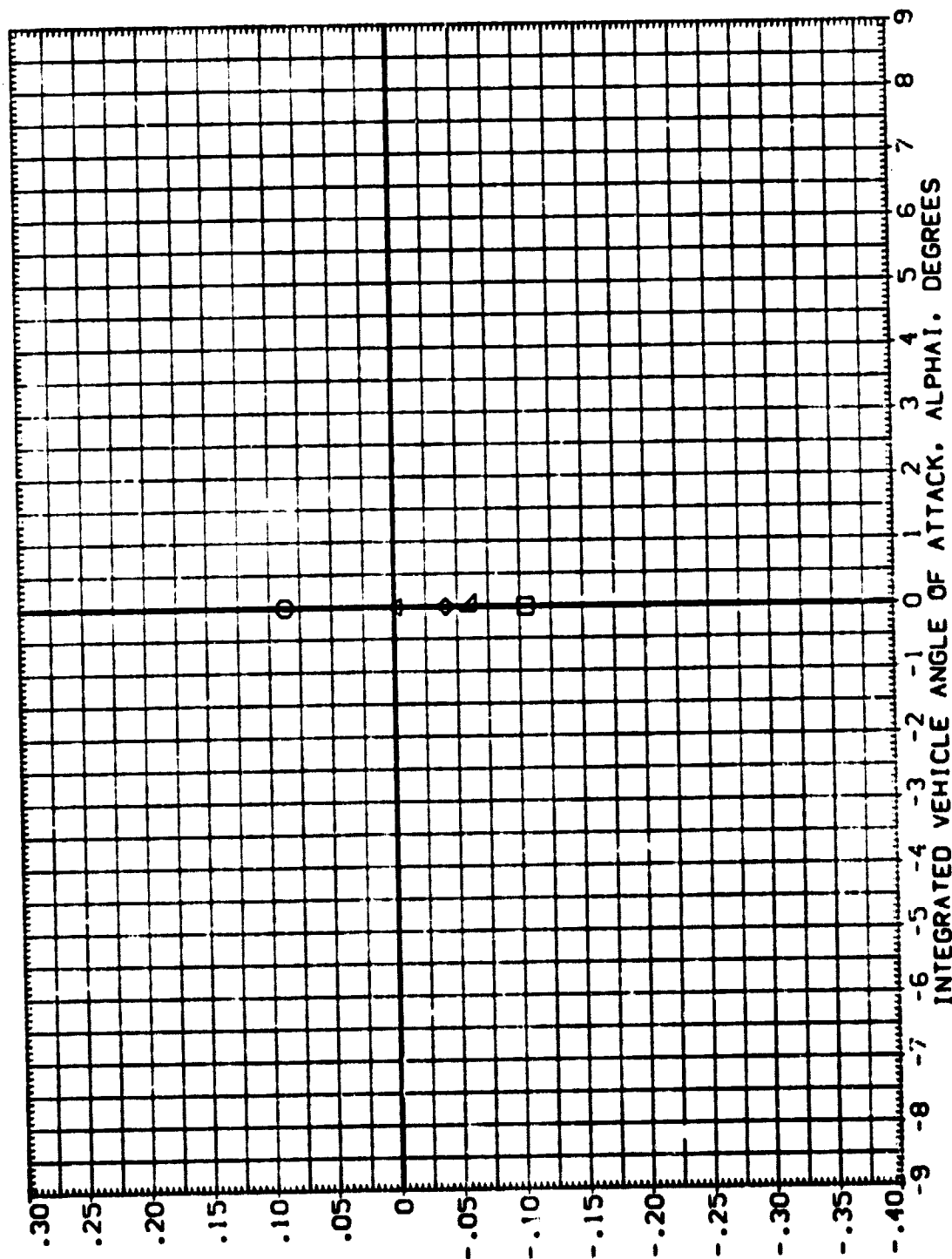


FIG. 10 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0

(A)BET.1 = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(NET104)	AVE597-019(IAB1) LVAP	8.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(NET144)	AVE597-019(IAB1) LVAP	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(NET144)	AVE597-019(IAB1) LVAP	8.000	.000	2.000	.000	BREF 1297.0000 IN.
(NET144)	AVE597-019(IAB1) LVAP	8.000	.000	2.000	.000	XMRP 976.0000 IN.
(NET144)	AVE597-019(IAB1) LVAP	8.000	.000	2.000	.000	YMRP 400.0000 IN.
(NET144)	AVE597-019(IAB1) LVAP	8.000	.000	2.000	.000	ZMRP 400.0000 IN.
						SCALE .0300

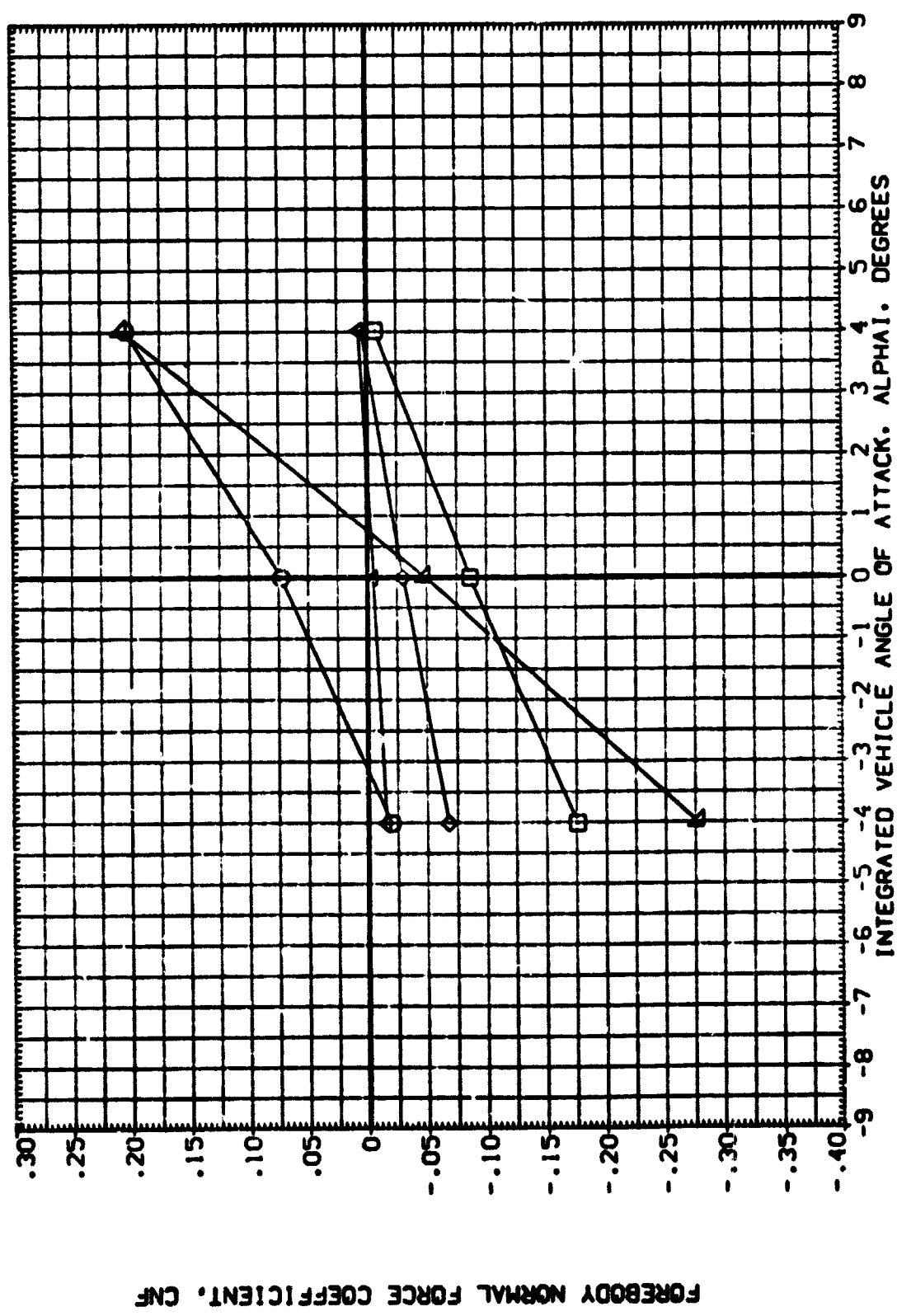


FIG. 10 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0

(B)BET.1 = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(NET044)	AMES57-019(IAB1) LVAP ORBITTER-ALL ML SEALED	8.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(NET144)	AMES57-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(NETL44)	AMES57-019(IAB1) LVAP L-SRB - ALL ML SEALED	8.000	.000	2.000	.000	BREF 1297.0000 IN.
(NETR44)	AMES57-019(IAB1) LVAP R-LRB - ALL ML SEALED	8.000	.000	2.000	.000	ZREF 376.0000 IN.
(NET144)	AMES57-019(IAB1) LVAP INT VEH ALL ML SEALED	8.000	.000	2.000	.000	ZMRP 400.0000 IN.
						SCALE .0300

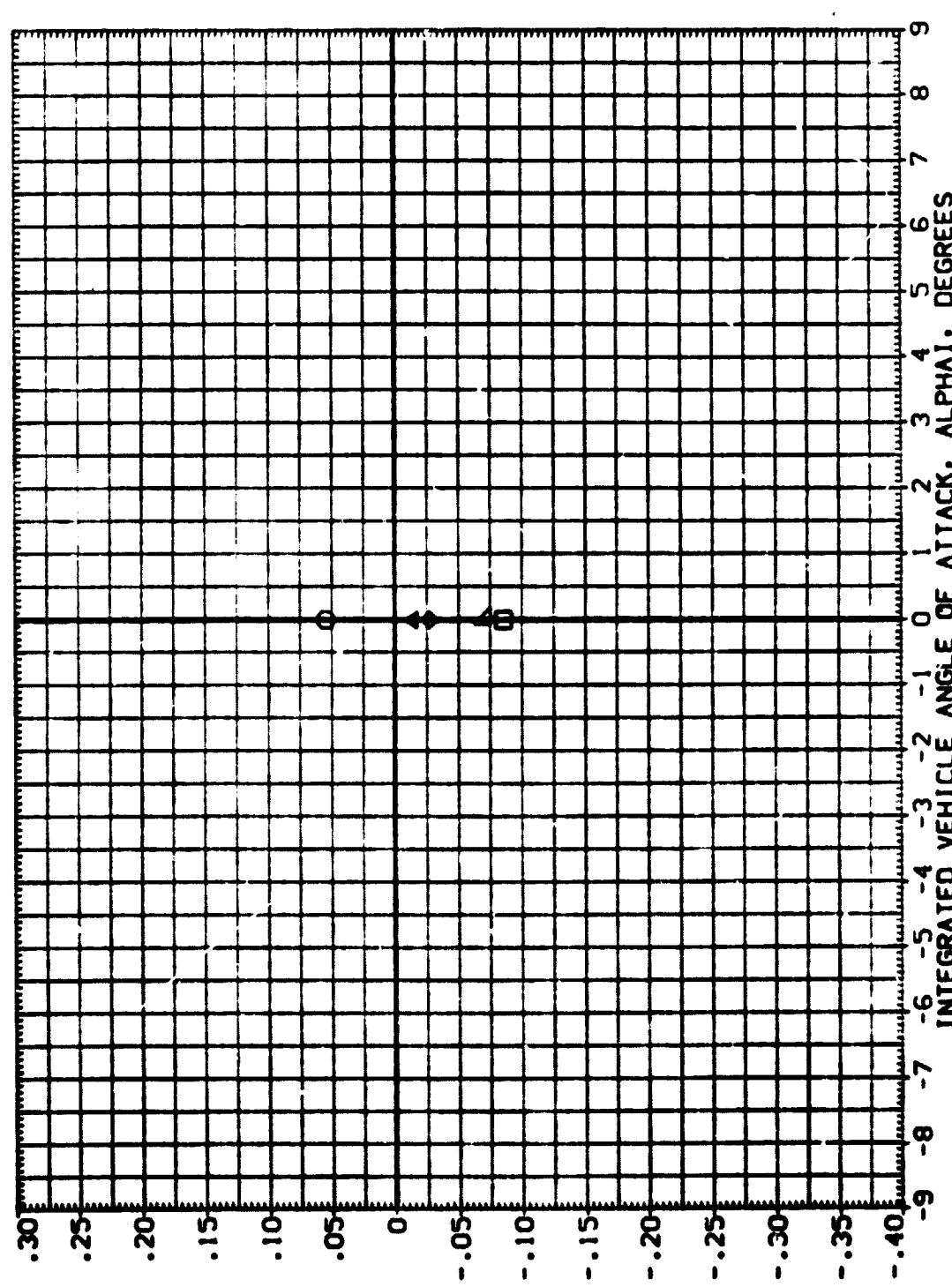


FIG. 10 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0

(C)BET.1 = -2.00

REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-08	MACH	SPOBARK	REFERENCE INFORMATION
(MET044)	AMES97-019(IAB1) LVAP	8.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET044)	AMES97-019(IAB1) LVAP	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(MET044)	AMES97-019(IAB1) LVAP	8.000	.000	2.000	.000	BREF 1297.0000 IN.
(MET044)	AMES97-019(IAB1) LVAP	8.000	.000	2.000	.000	XMRP 976.0000 IN. XT
(MET044)	AMES97-019(IAB1) LVAP	8.000	.000	2.000	.000	YMRP 400.0000 IN. YT
(MET044)	AMES97-019(IAB1) LVAP	8.000	.000	2.000	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

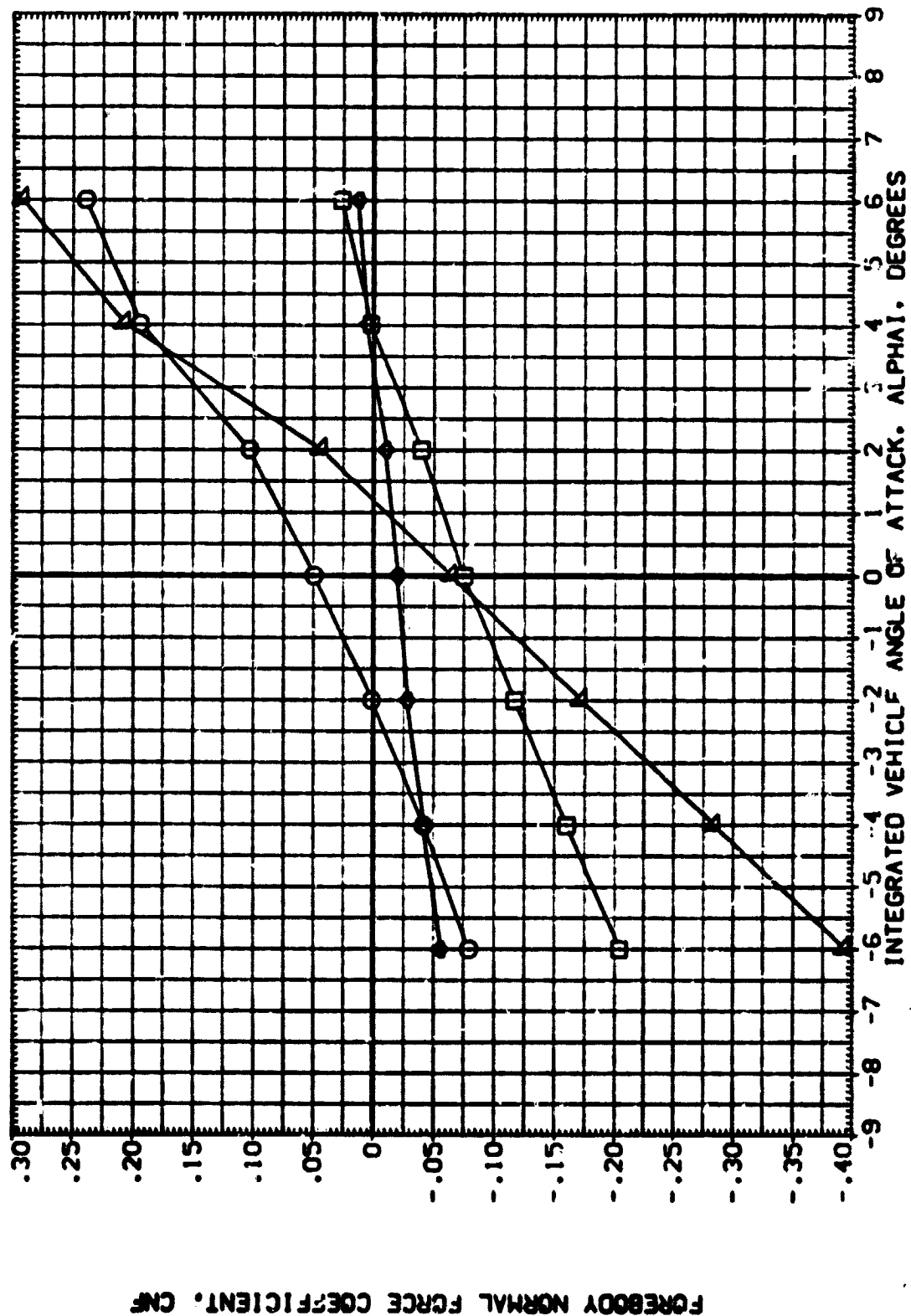
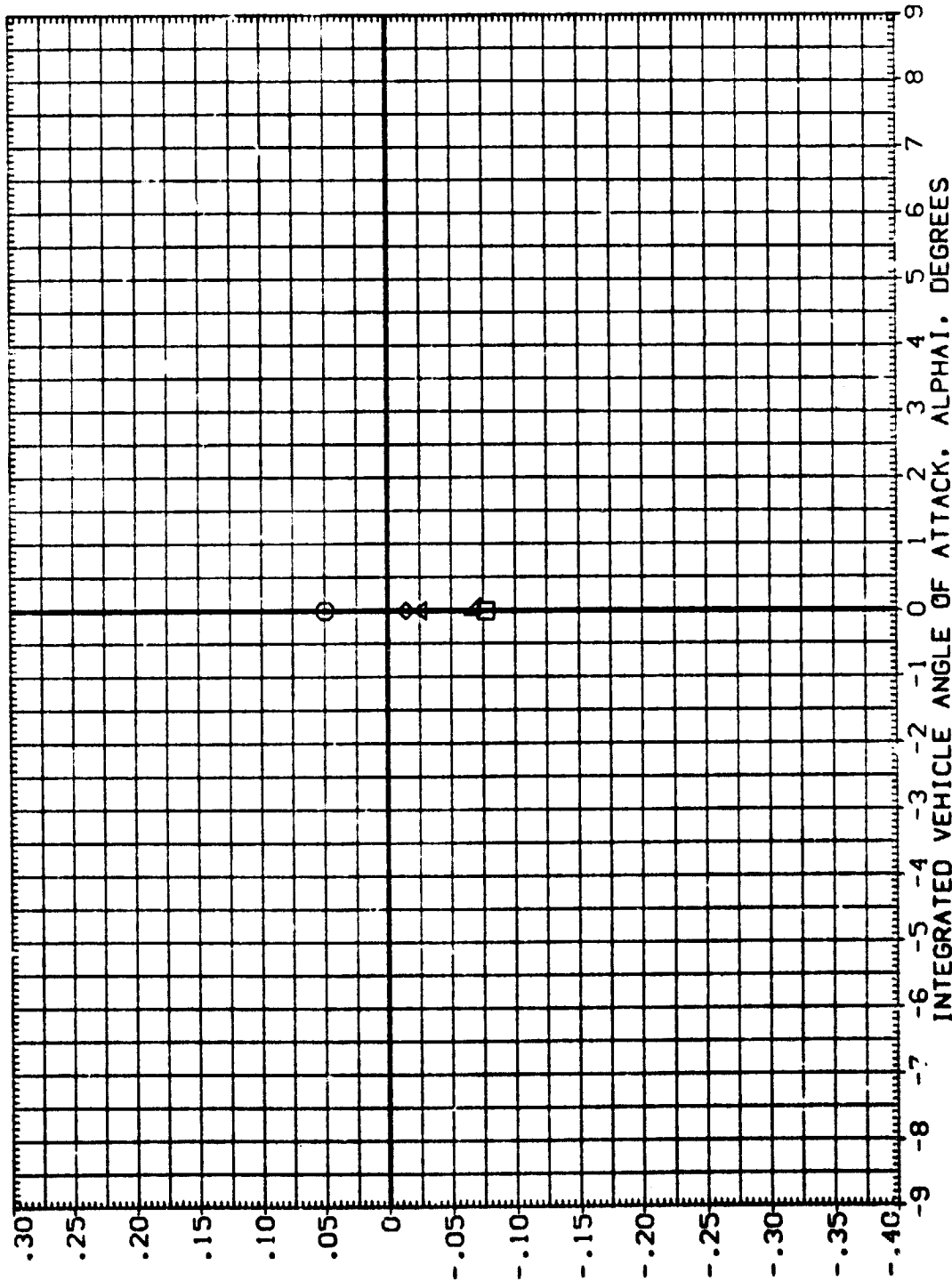


FIG. 16 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS. M=2.0 DEV=8/0

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(MET044)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET144)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(METL44)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.000	.000	RREF 1297.0000 IN.
(METR44)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	.000	2.000	.000	XMREF 976.0000 IN.
(METI44)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.000	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

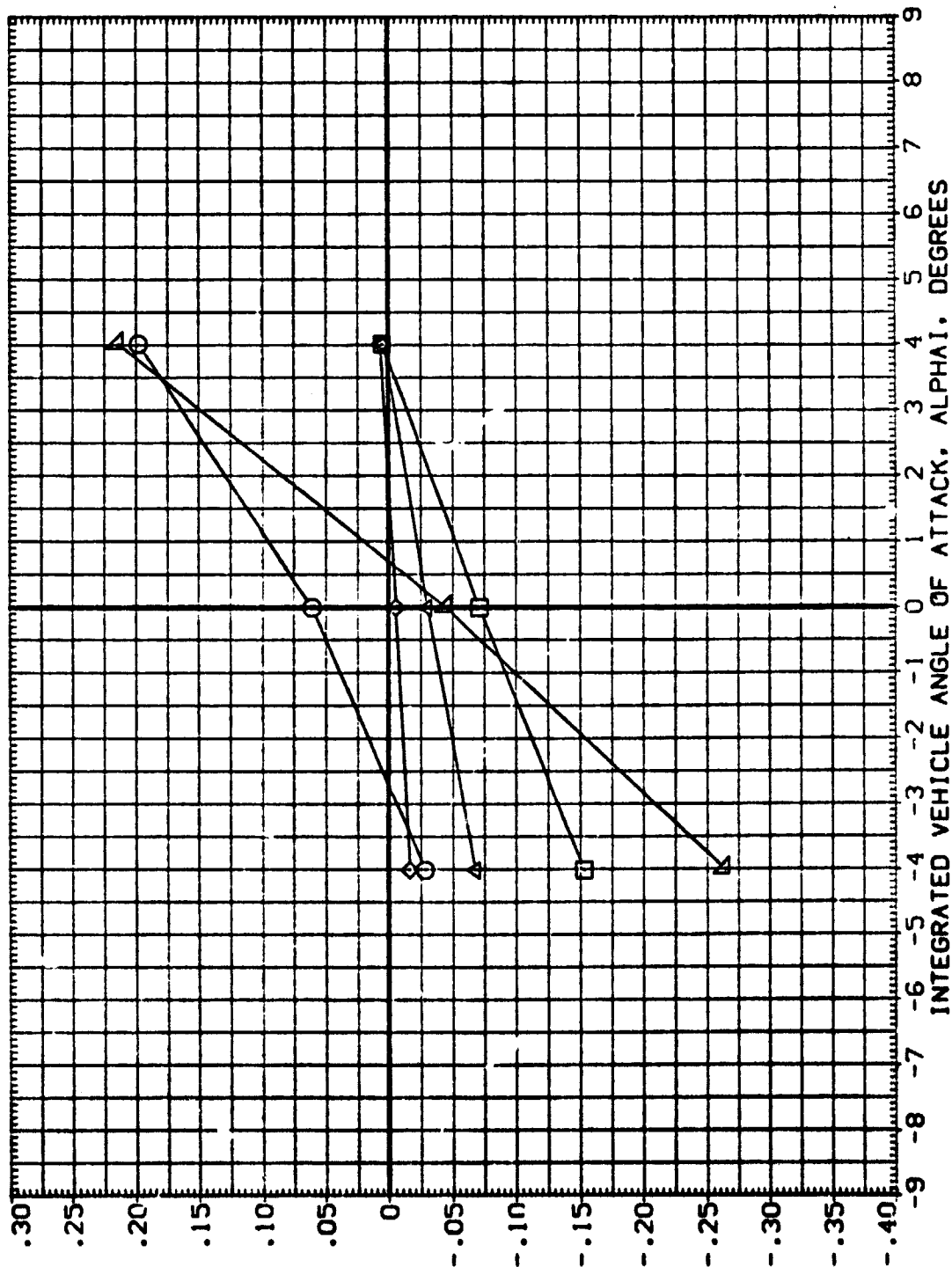


FOREBODY NORMAL FORCE COEFFICIENT, CNF

FIG. 10 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0

(E)BET.1 = 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-08	MACH	SPDRBK	REFERENCE INFORMATION
(MET044)	AMES97-019(1A81) LVAP ORBITER-ALL ML SEALED	8.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET144)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(MET144)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.000	.000	BREF 1297.0000 IN.
(MET144)	AMES97-019(1A81) LVAP R-LRB ALL HL SEALED	8.000	.000	2.000	.000	XMRP 976.0000 IN. XT
(MET144)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	.000	2.000	.000	YMRP 400.0000 IN. YT
						SCALE .0300



FOREBODY NORMAL FORCE COEFFICIENT, CNF

FIG. 10 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0

(F)BET,I = 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	CDPRK	REFERENCE INFORMATION
(MET044)	APES97-019(IAB1) LVAP	8.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET044)	APES97-019(IAB1) LVAP	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(MET044)	APES97-019(IAB1) LVAP	8.000	.000	2.000	.000	EKEF 1297.0000 IN.
(MET044)	APES97-019(IAB1) LVAP	8.000	.000	2.000	.000	XMRP 976.0000 IN.
(MET044)	APES97-019(IAB1) LVAP	8.000	.000	2.000	.000	YMRP 400.0000 IN.
(MET044)	APES97-019(IAB1) LVAP	8.000	.000	2.000	.000	ZMRP 400.0000 IN.
						SCALE .0300

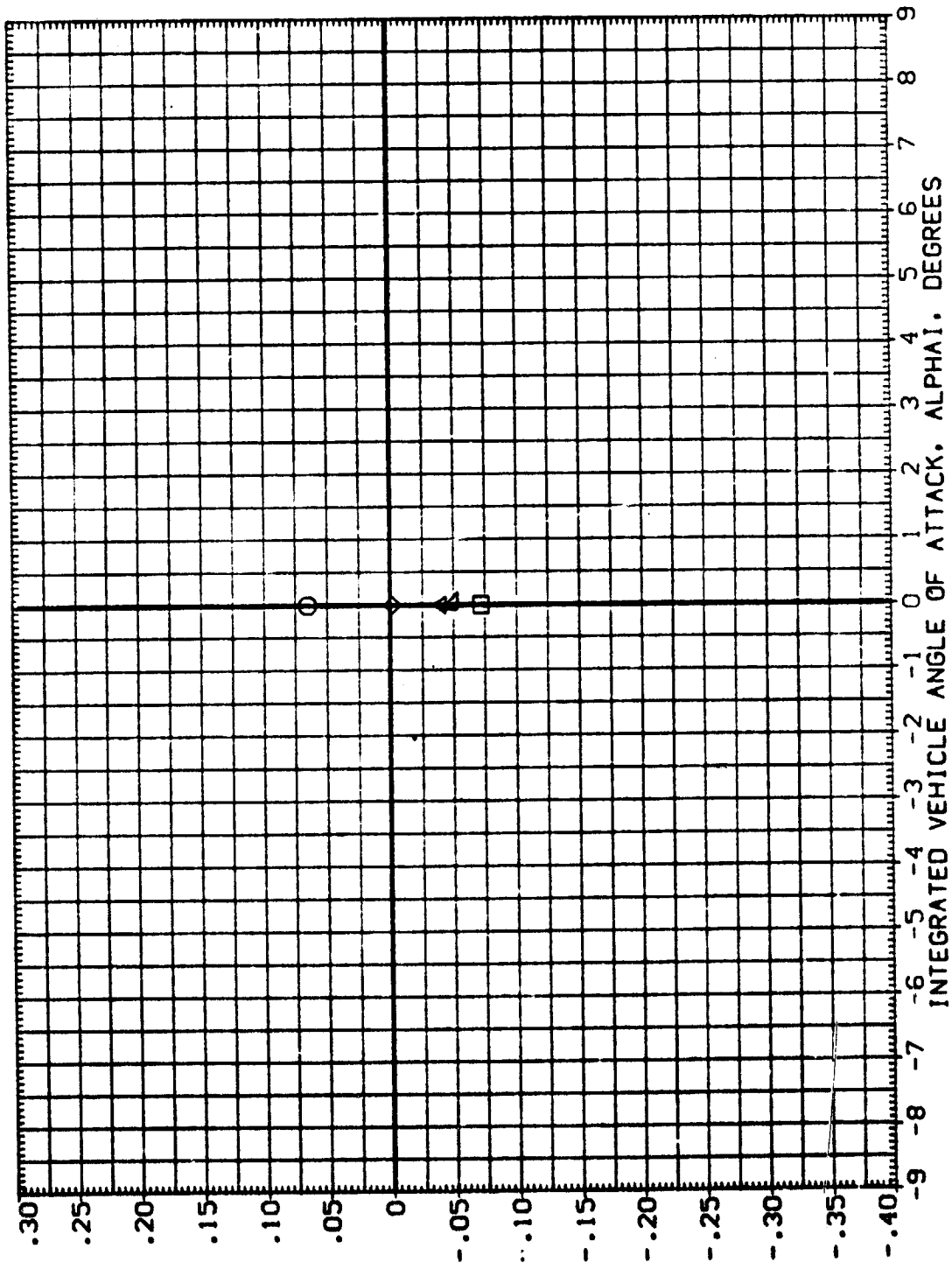


FIG. 10 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(MET044)	AMES97-0191(A81) LVAP ORBITER-ALL HL SEALED	8.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET144)	AMES97-0191(A81) LVAP TANK - ALL HL SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(METL44)	AMES97-0191(A81) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.000	.000	BREF 1297.0000 IN.
(METR44)	AMES97-0191(A81) LVAP R-LRB ALL HL SEALED	8.000	.000	2.000	.000	YMRP 976.0000 IN.
(MET144)	AMES97-0191(A81) LVAP INT VEH ALL HL SEALED	8.000	.000	2.000	.000	ZMRP 400.0000 IN.
						SCALE .0300

FOREBODY PITCHING MOMENT COEFFICIENT, CLMF

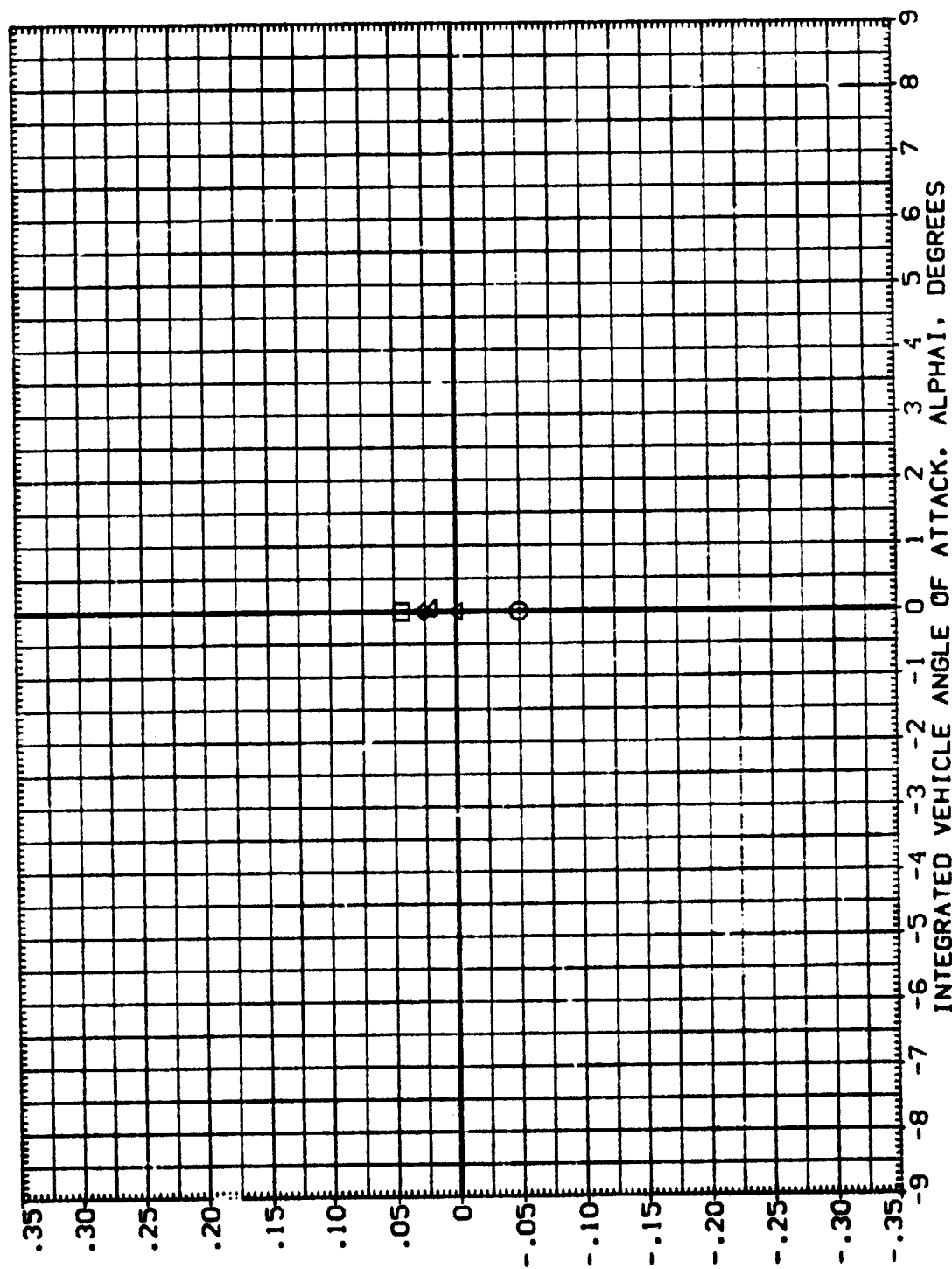
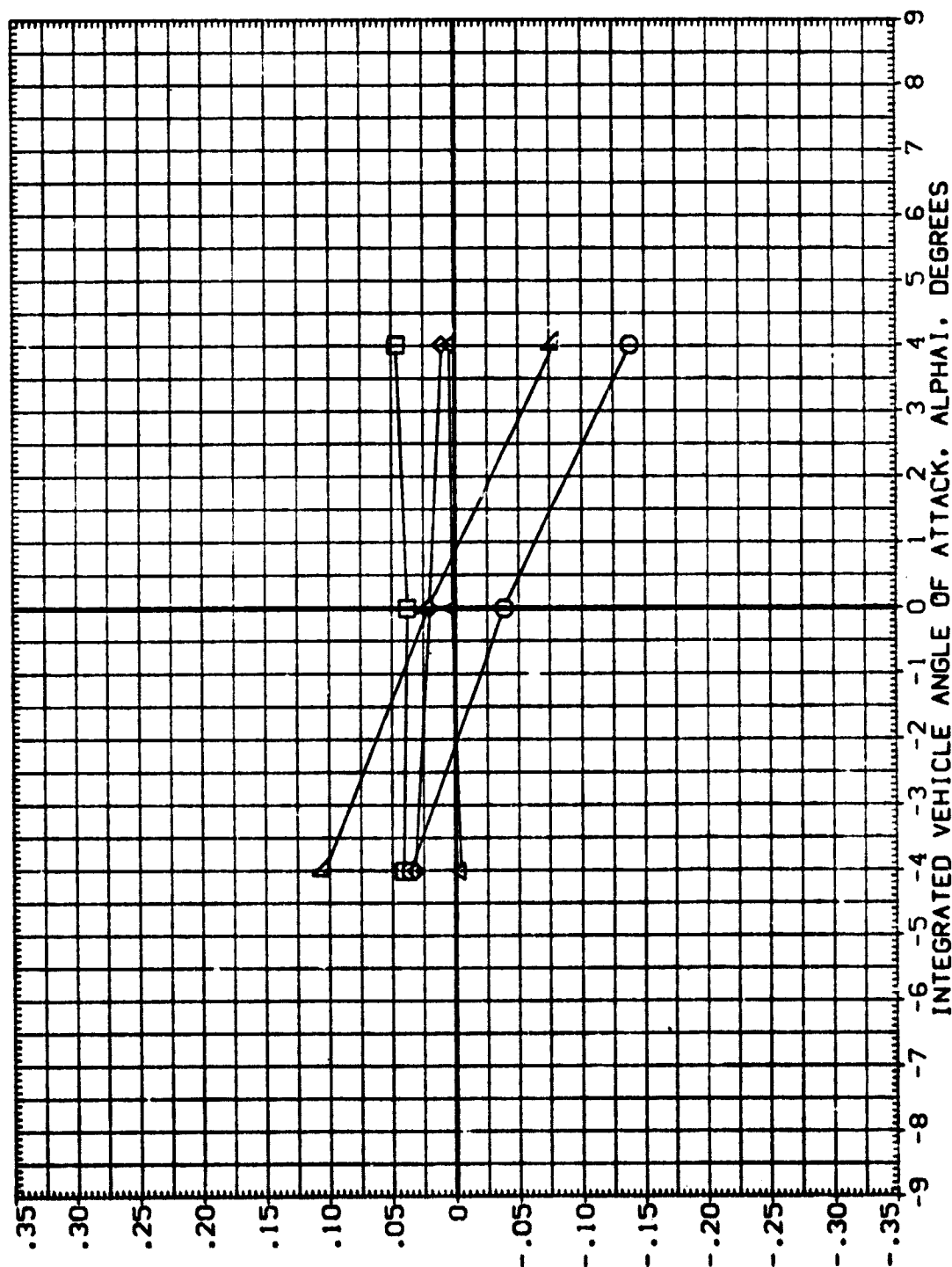


FIG. 10 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0

(A)BET.1 = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(MET044)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	.000	2.000	.000	SREF 2690.0000
(MET144)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.000	.000	LREF 1297.0000
(MET144)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.000	.000	BREF 1297.0000
(MET144)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	8.000	.000	2.000	.000	XMRP 976.0000
(MET144)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.000	.000	ZMRP 400.0000
						SCALE .0300



FOREBODY PITCHING MOMENT COEFFICIENT, C_{mp}

FIG. 10 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=2.0$ $DEV=8/0$

(B)BET.1 = -4.00

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPCDBRK	REFERENCE INFORMATION			
(NET044)	□	AVES97-019(IAB1) LVAP ORBITER-ALL ML SEALED	8.000	.000	2.000	.000	SREF	2690.0000	SD.FT.	
(NET144)	□	AVES97-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	.000	2.000	.000	LREF	1297.0000	IN.	
(NET144)	□	AVES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	8.000	.000	2.000	.000	BREF	1297.0000	IN.	XT
(NET144)	□	AVES97-019(IAB1) LVAP R-LRB - ALL ML SEALED	8.000	.000	2.000	.000	XMRP	976.0000	IN.	YT
(NET144)	□	AVES97-019(IAB1) LVAP INT VEN ALL ML SEALED	8.000	.000	2.000	.000	YMRP	.0000	IN.	YT
							ZMRP	400.0000	IN.	YT
							SCALE	.0300		

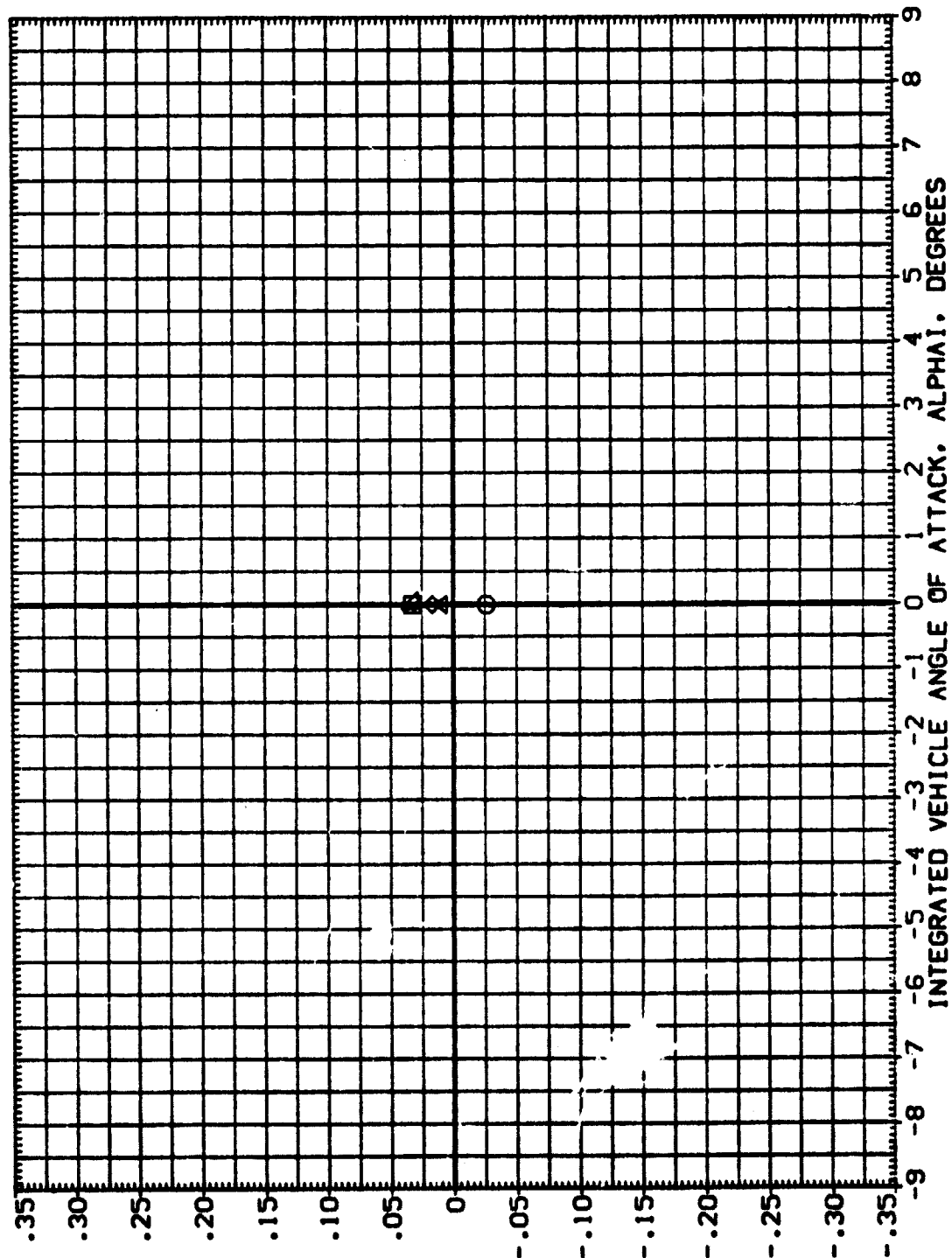


FIG. 10 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0

(C)BET.1 = -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SFDRBK	REFERENCE INFORMATION
(MET044)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	.000	2.000	.000	SREF 2690.0000 SO.FT.
(MET144)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(METL44)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.000	.000	BREF 1297.0000 IN.
(METR44)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	.000	2.000	.000	YHRP 976.0000 IN.
	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.000	.000	YHRP 976.0000 IN.
						ZHRP 400.0000 IN.
						SCALE .0300

FOREBODY PITCHING MOMENT COEFFICIENT, CLMF

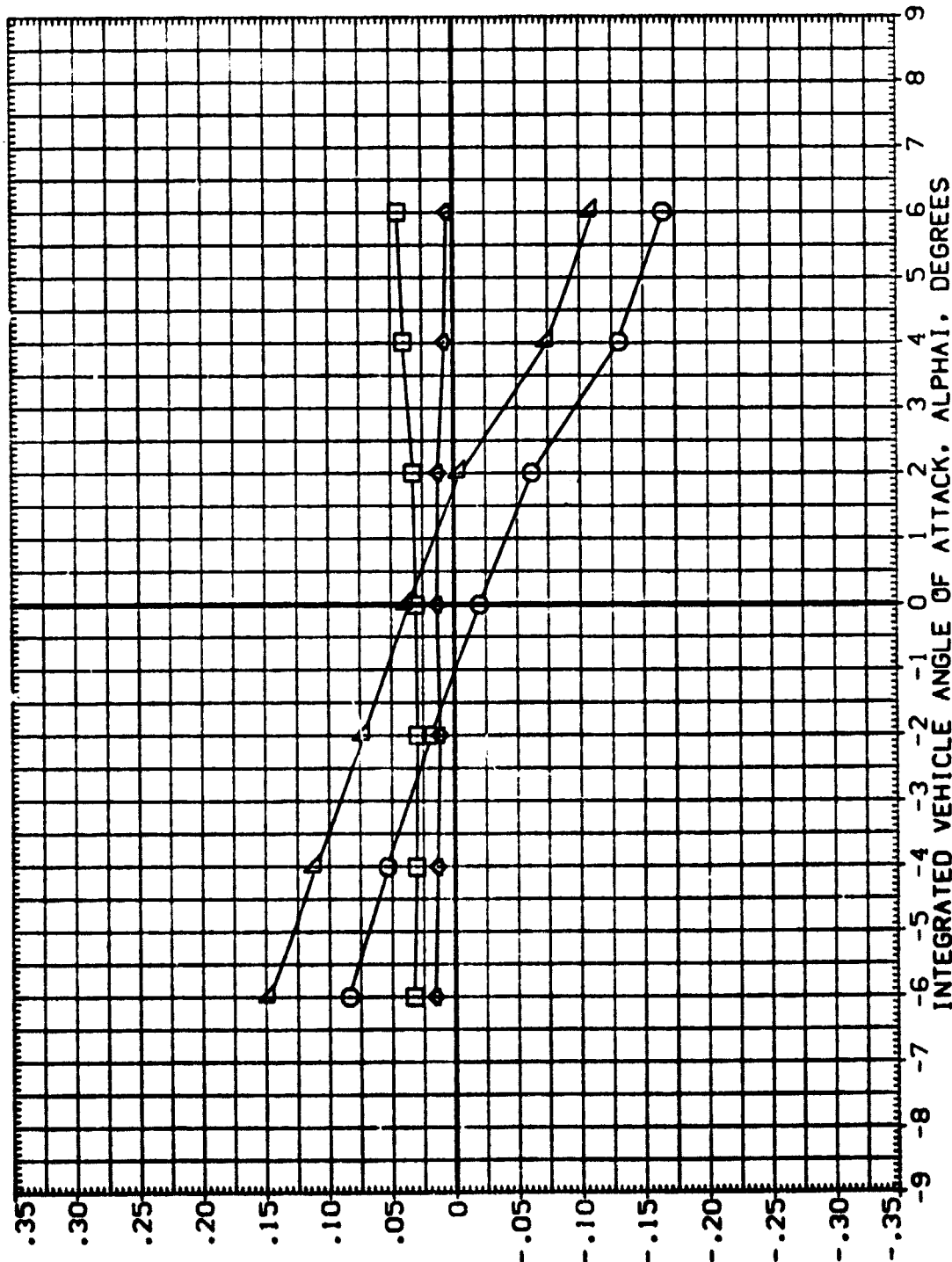


FIG. 10 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0

(O)BET.1 = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(MET044)	AMES97-019(IAB1) LVAP CRB1TER-ALL HL SEALED	8.000	.000	2.000	.000	SREF 2690.0000 SO.FT.
(MET144)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(METL44)	AMES97-019(IAB1) LVAP L-CRB - ALL HL SEALED	8.000	.000	2.000	.000	BREF 1297.0000 IN.
(METR44)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	8.000	.000	2.000	.000	XMRP 976.0000 IN. XT
(MET144)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.000	.000	ZMRP 400.0000 IN. VT
						SCALE .0300

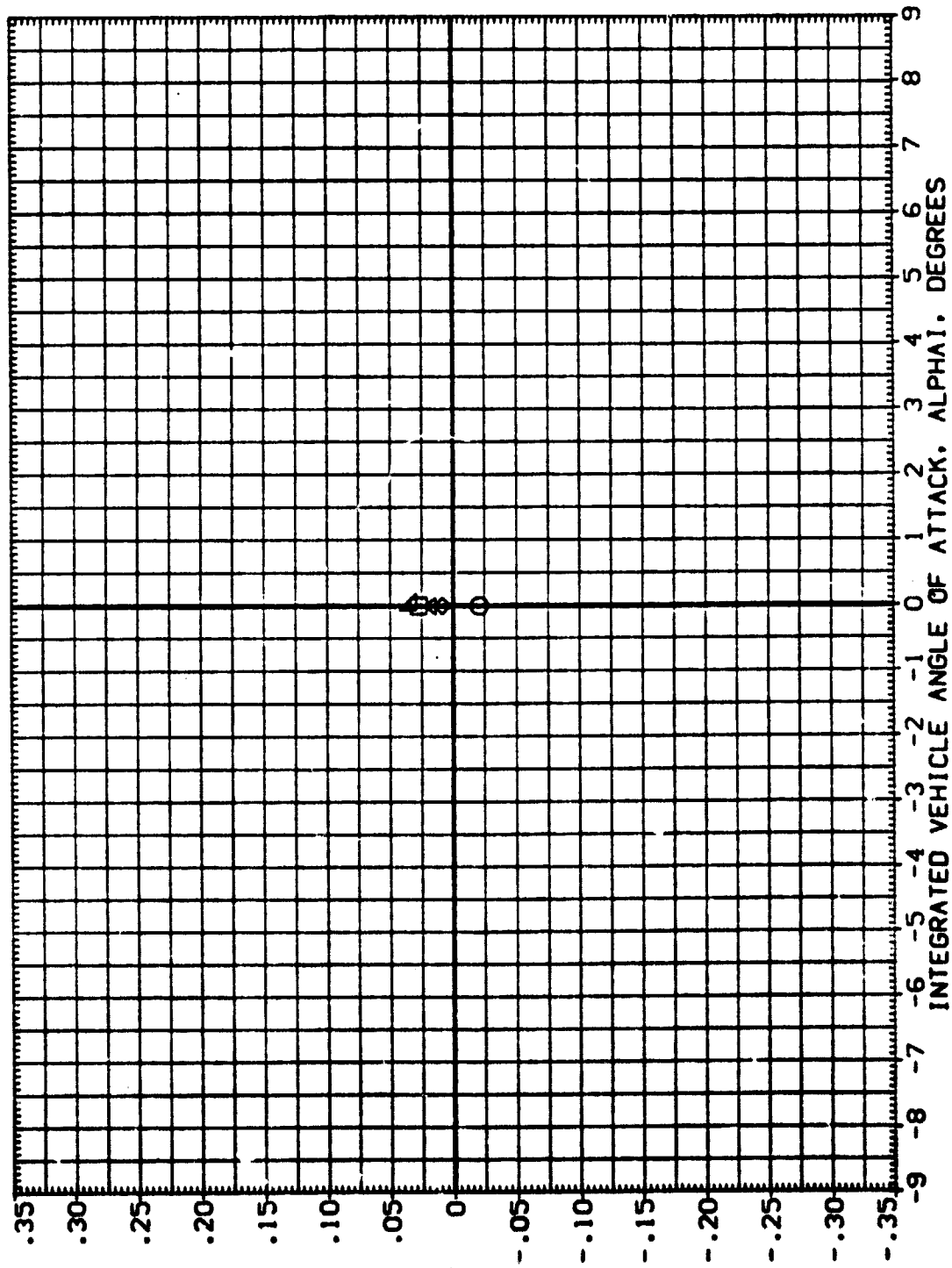
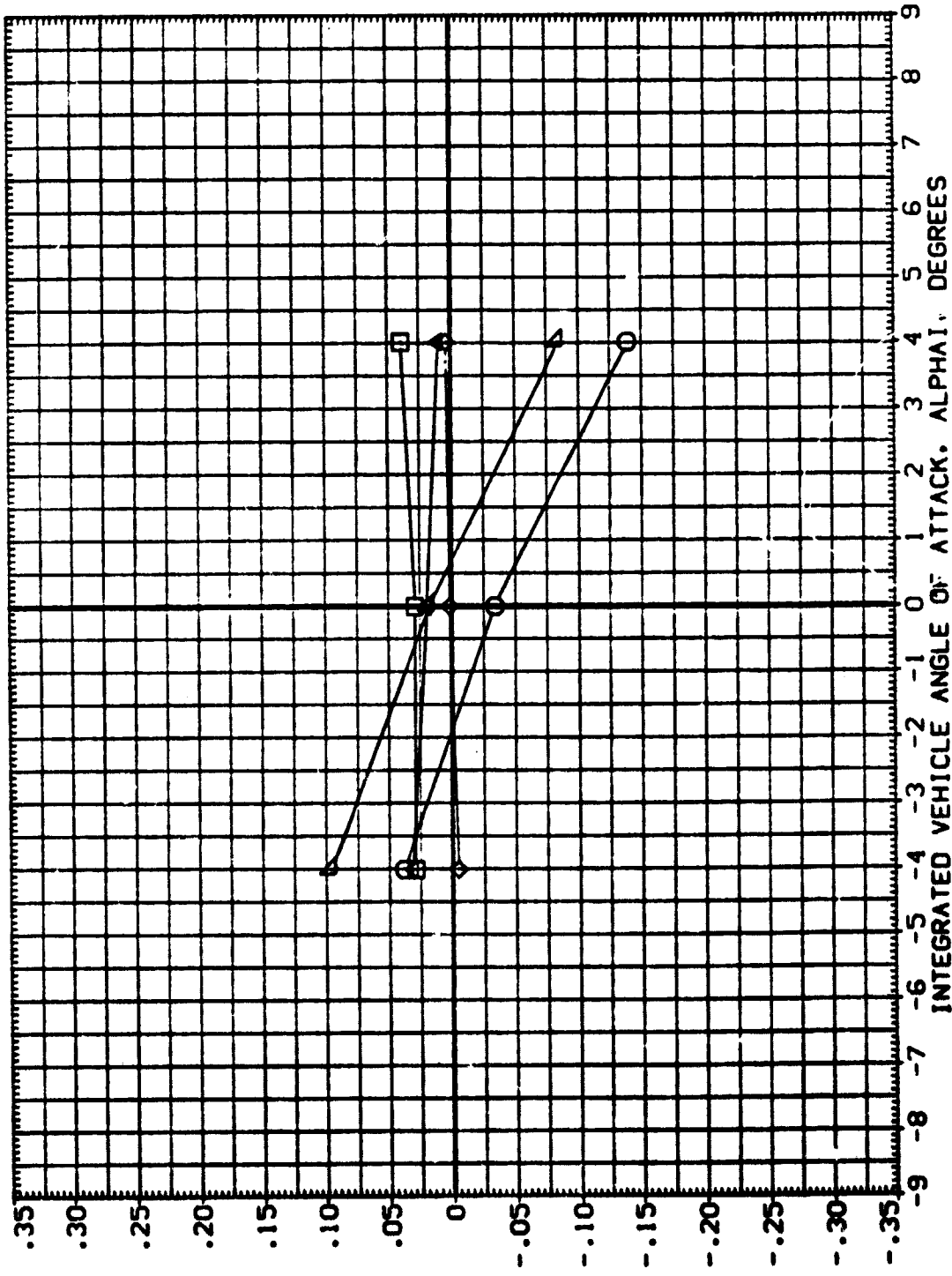


FIG. 10 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0

(E)BET.1 = 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(MET044)	AWES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	.000	2.000	.000	SPEF 2690.0000 SO.FT.
(MET144)	AWES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(METL44)	AWES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.000	.000	BREF 1297.0000 IN.
(METR44)	AWES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	.000	2.000	.000	XMRP 976.0000 IN. XT
(MET144)	AWES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.000	.000	YMRP 400.0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300



FOREBODY PITCHING MOMENT COEFFICIENT, CMF

FIG. 10 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRBK	REFERENCE INFORMATION			
(NET044)	AMES97-019(1A81) LVAP ORBITER-ALL HL SEALED	8.000	.000	2.000	.000	SREF	2690.0000	50. FT.	
(NET144)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	.000	2.000	.000	LREF	1297.0000	IN.	
(NETL44)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.000	.000	BREF	1297.0000	IN.	XT
(NETP44)	AMES97-019(1A81) LVAP R-LRB - ALL HL SEALED	8.000	.000	2.000	.000	XMRP	976.0000	IN.	YT
(NET144)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	.000	2.000	.000	YMRP	.0000	IN.	ZT
						ZMRP	400.0000	IN.	
						SCALE	.0300		

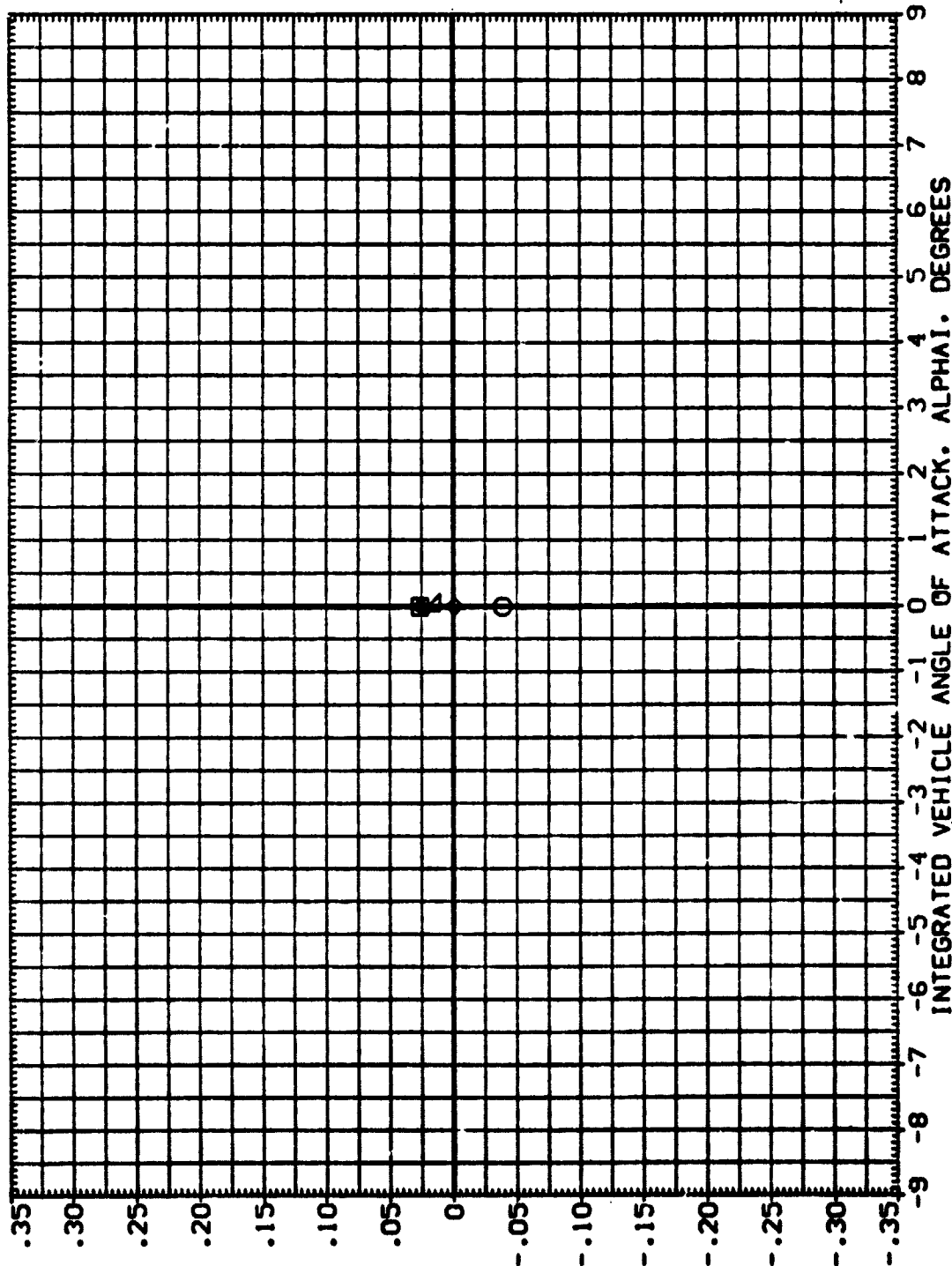


FIG. 10 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0

(G)BET.1 = 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(MET044)	AMES57-019(IAB1) LVAP ORBITTER-ALL ML SEALED	8.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET044)	AMES57-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(MET044)	AMES57-019(IAB1) LVAP L-SRB - ALL ML SEALED	8.000	.000	2.000	.000	BREF 1297.0000 IN.
(MET044)	AMES57-019(IAB1) LVAP R-LRB - ALL ML SEALED	8.000	.000	2.000	.000	XMRP 976.0000 IN.
(MET044)	AMES57-019(IAB1) LVAP INT VEH ALL ML SEALED	8.000	.000	2.000	.000	YMRP .0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

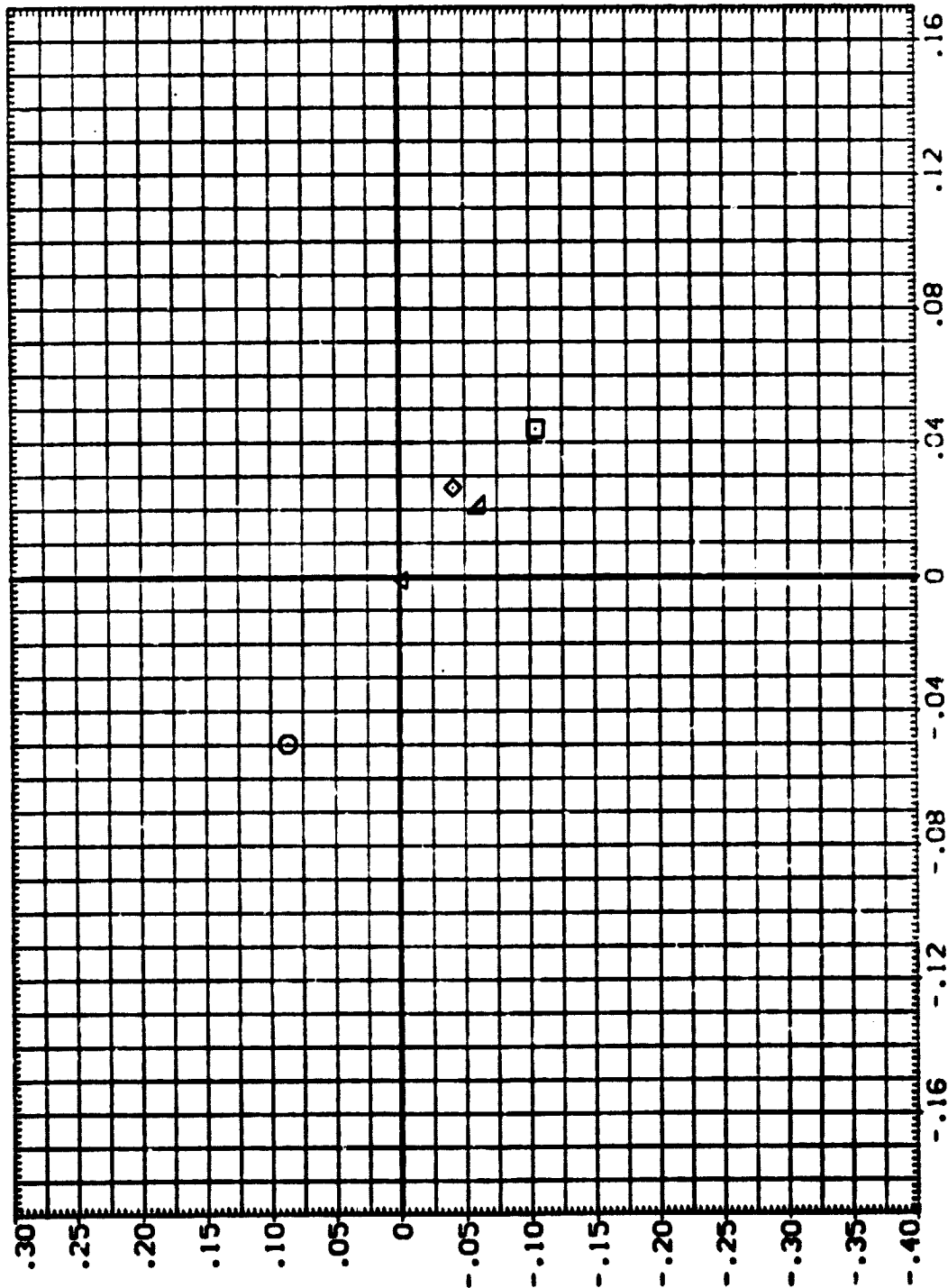


FIG. 10 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0

(A)BET.1 = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(NET044)	AVE597-019(IAB1) LVAP ORBITTER-ALL ML SEALED	8.000	.000	2.000	.000	SREF 2690.0000 SO.FT.
(NET144)	AVE597-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(NET144)	AVE597-019(IAB1) LVAP L-SPB - ALL ML SEALED	8.000	.000	2.000	.000	BREF 1297.0000 IN.
(NET144)	AVE597-019(IAB1) LVAP R-LRB ALL ML SEALED	8.000	.000	2.000	.000	XMRP 576.0000 IN. XT
(NET144)	AVE597-019(IAB1) LVAP INT VEN ALL ML SEALED	8.000	.000	2.000	.000	VMRP 400.0000 IN. VT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

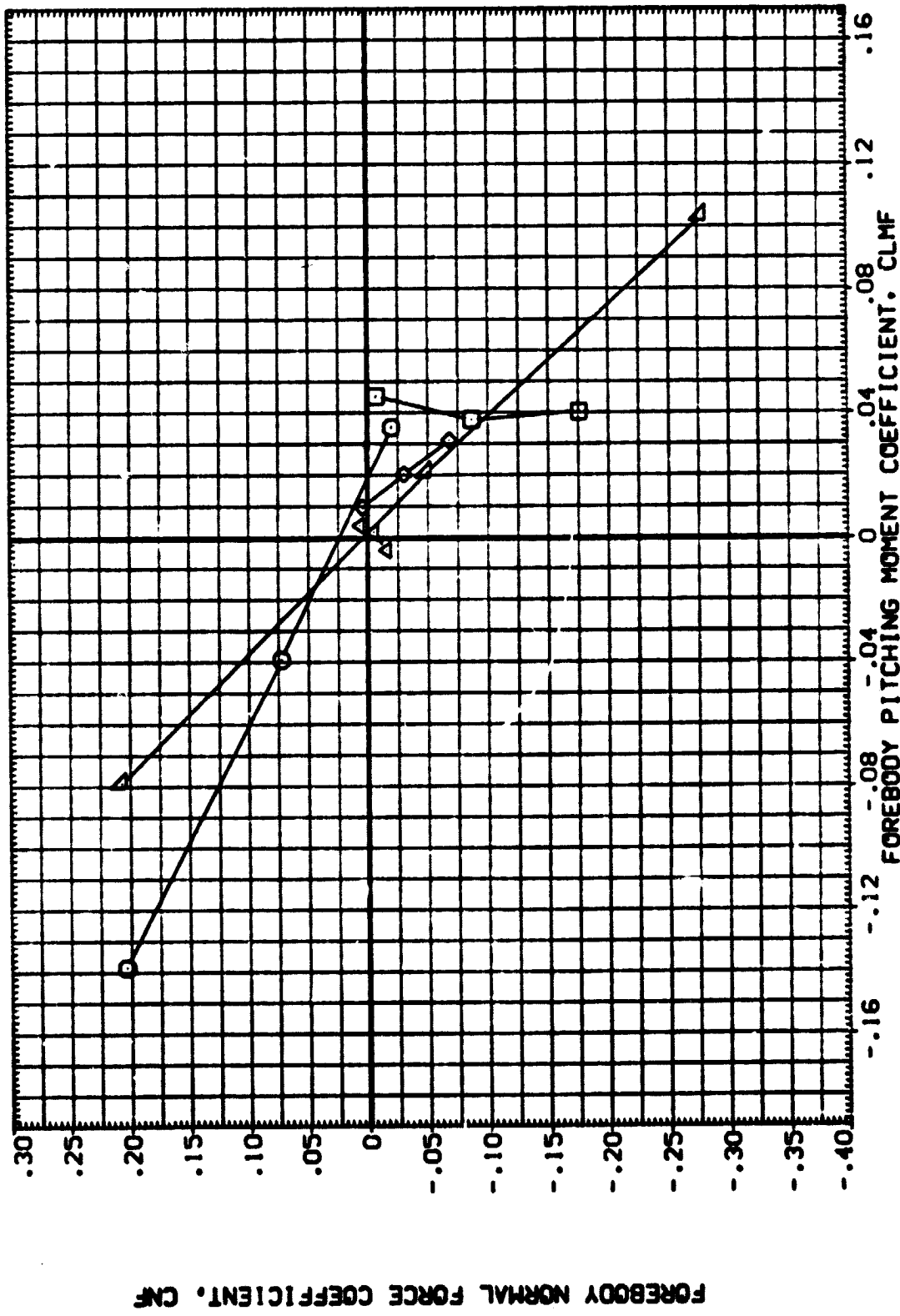


FIG. 10 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0
 (B)BET.1 = -4.00 PAGE 175

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(MET04)	AMES77-0191 (AB1) LVAP ORBITER-ALL ML SEALED	8.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET14)	AMES77-0191 (AB1) LVAP TANK - ALL ML SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(MET14)	AMES77-0191 (AB1) LVAP L-508 - ALL ML SEALED	8.000	.000	2.000	.000	BREF 1297.0000 IN.
(MET14)	AMES77-0191 (AB1) LVAP R-1-2 ALL ML SEALED	8.000	.000	2.000	.000	VMRP 976.0000 IN.
(MET14)	AMES77-0191 (AB1) LVAP INT VEM ALL ML SEALED	8.000	.000	2.000	.000	VMRP 400.0000 IN.
						SCALE .0300

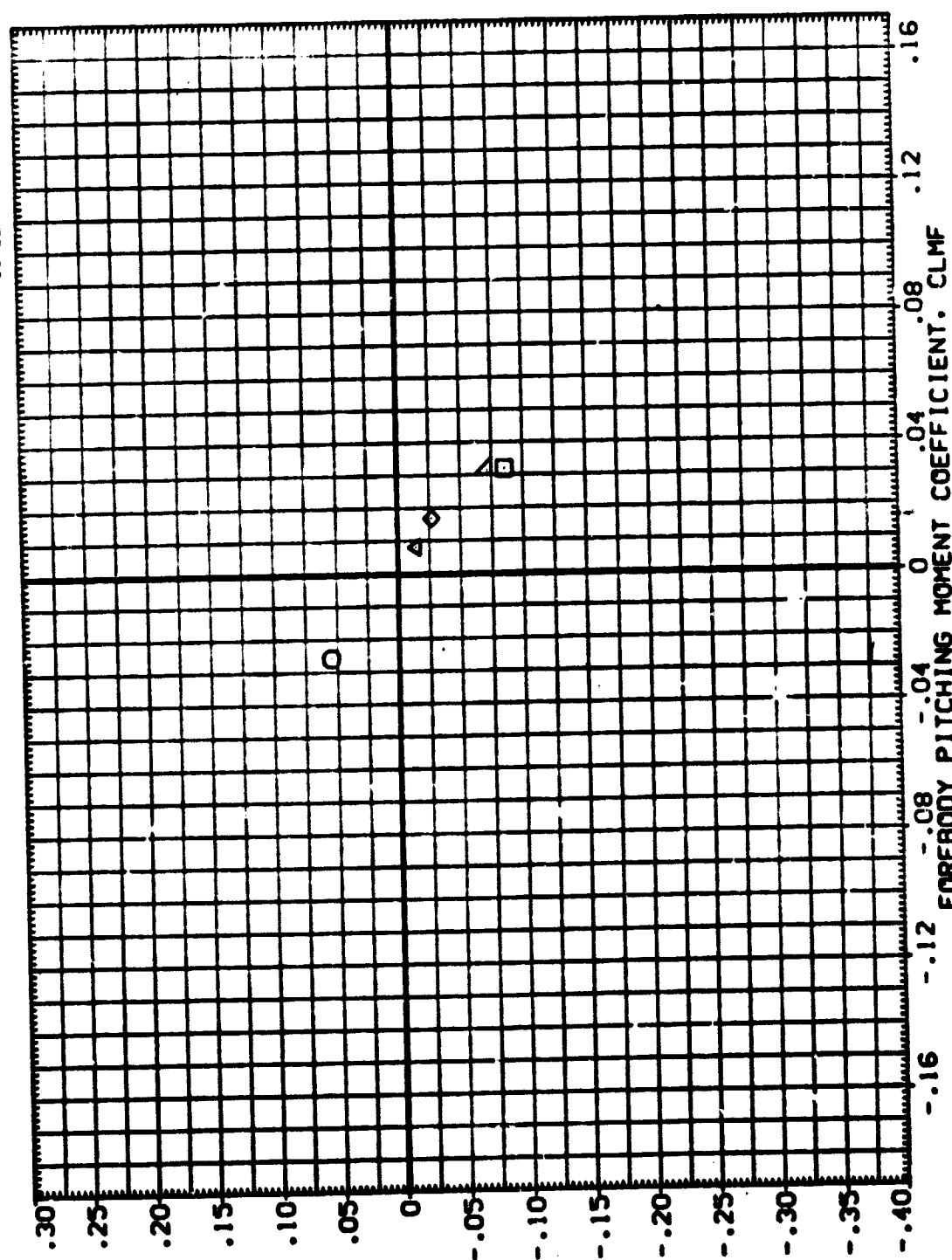


FIG. 10 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0
(C)BETA1 = -2.00

DATA SET SYMBOL CONFIGURATION DESCRIPTION

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(MET144)	AMES97-013(IAB1) LVAP ORBITER-ALL ML SEALED	8.000	.000	2.000	.000	SREF 2530.0000 SO.FT.
(MET144)	AMES97-013(IAB1) LVAP TANK - ALL ML SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(MET144)	AMES97-013(IAB1) LVAP L-5RB - ALL ML SEALED	8.000	.003	2.000	.000	BREF 1297.0000 IN.
(MET144)	AMES97-013(IAB1) LVAP R-LP3 ALL ML SEALED	8.000	.000	2.000	.000	YREF 576.0000 IN.
(MET144)	AMES97-013(IAB1) LVAP INT VEN ALL ML SEALED	8.000	.000	2.000	.000	ZREF 400.0000 IN.
						SCALE .0300

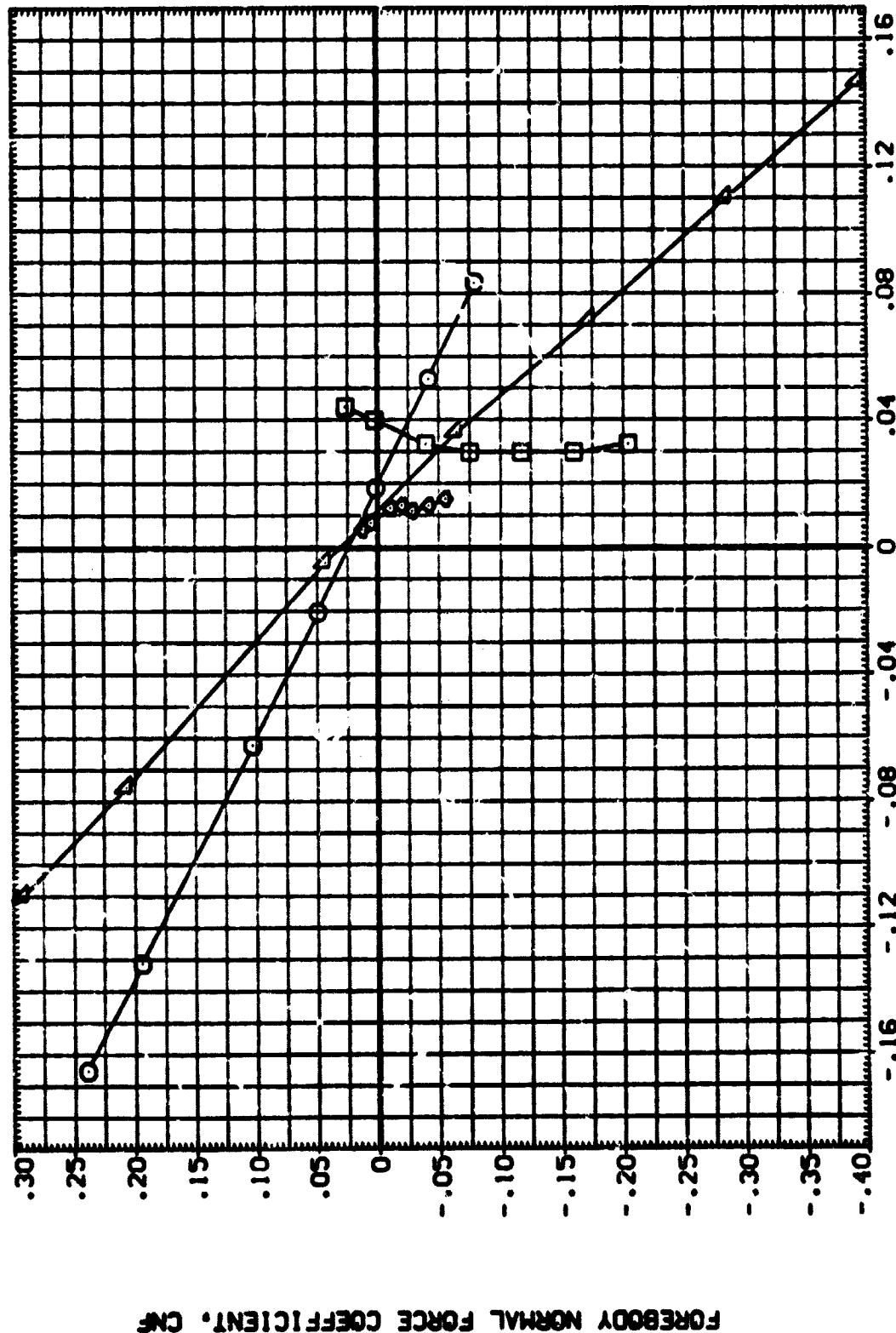


FIG. 10 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0

(0)BET.1 - .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	M/CH	SPDBRK	REFERENCE INFORMATION
(MET044)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET144)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(MET144)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.000	.000	BREF 1297.0000 IN.
(MET144)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	8.000	.000	2.000	.000	XMRP 976.0000 IN.
(MET144)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.000	.000	YMRP .0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

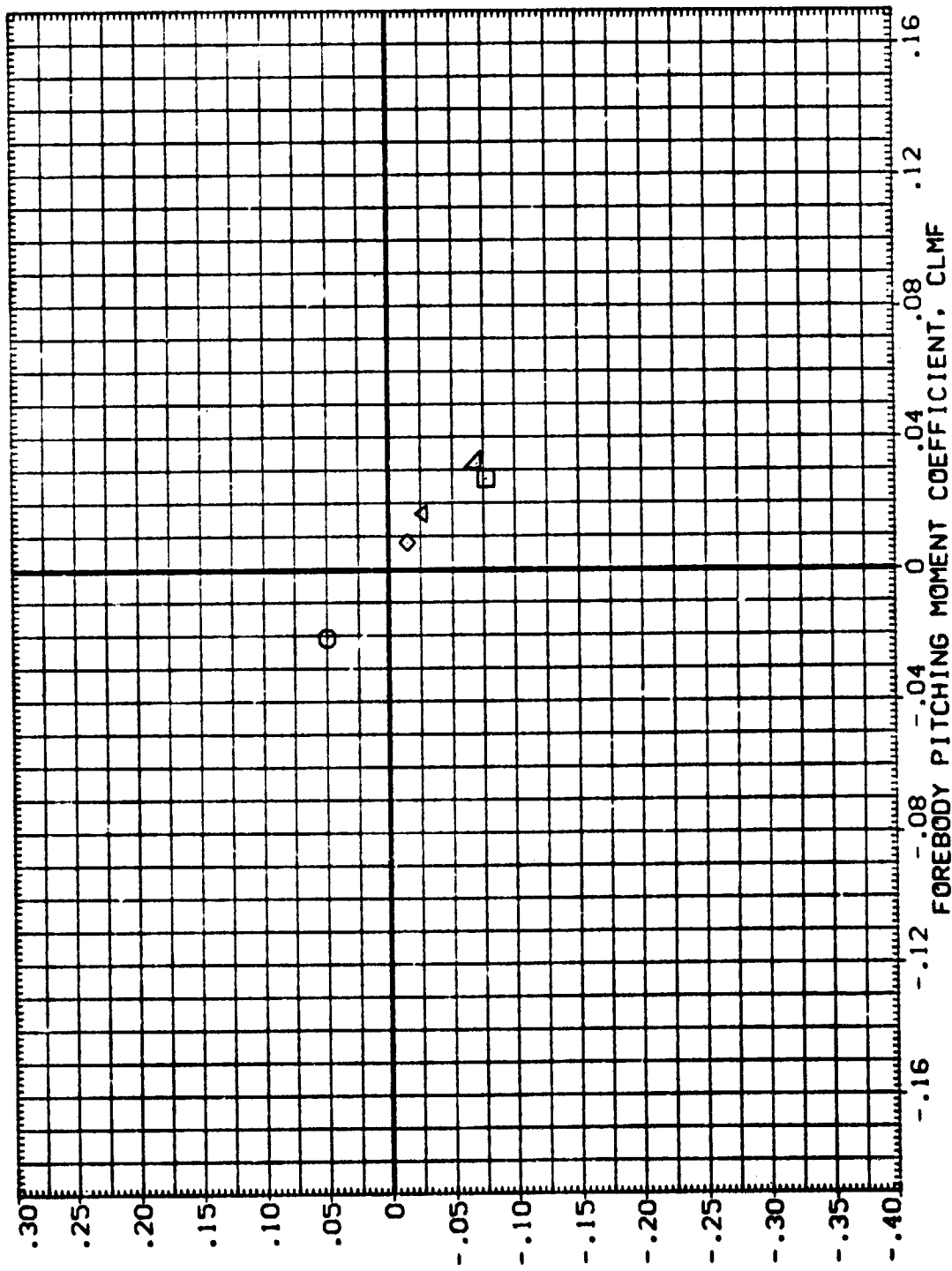


FIG. 10 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0

(E)BET.1 = 2.00

REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(MET044)	AMES97-019(1A81) LVAP ORBITER-AL1 HL SEALED	8.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET144)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(MET144)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.000	.000	BREF 1297.0000 IN.
(MET144)	AMES97-019(1A81) LVAP R-LRB ALL HL SEALED	8.000	.000	2.000	.000	XMRP 976.0000 IN.
(MET144)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	.000	2.000	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

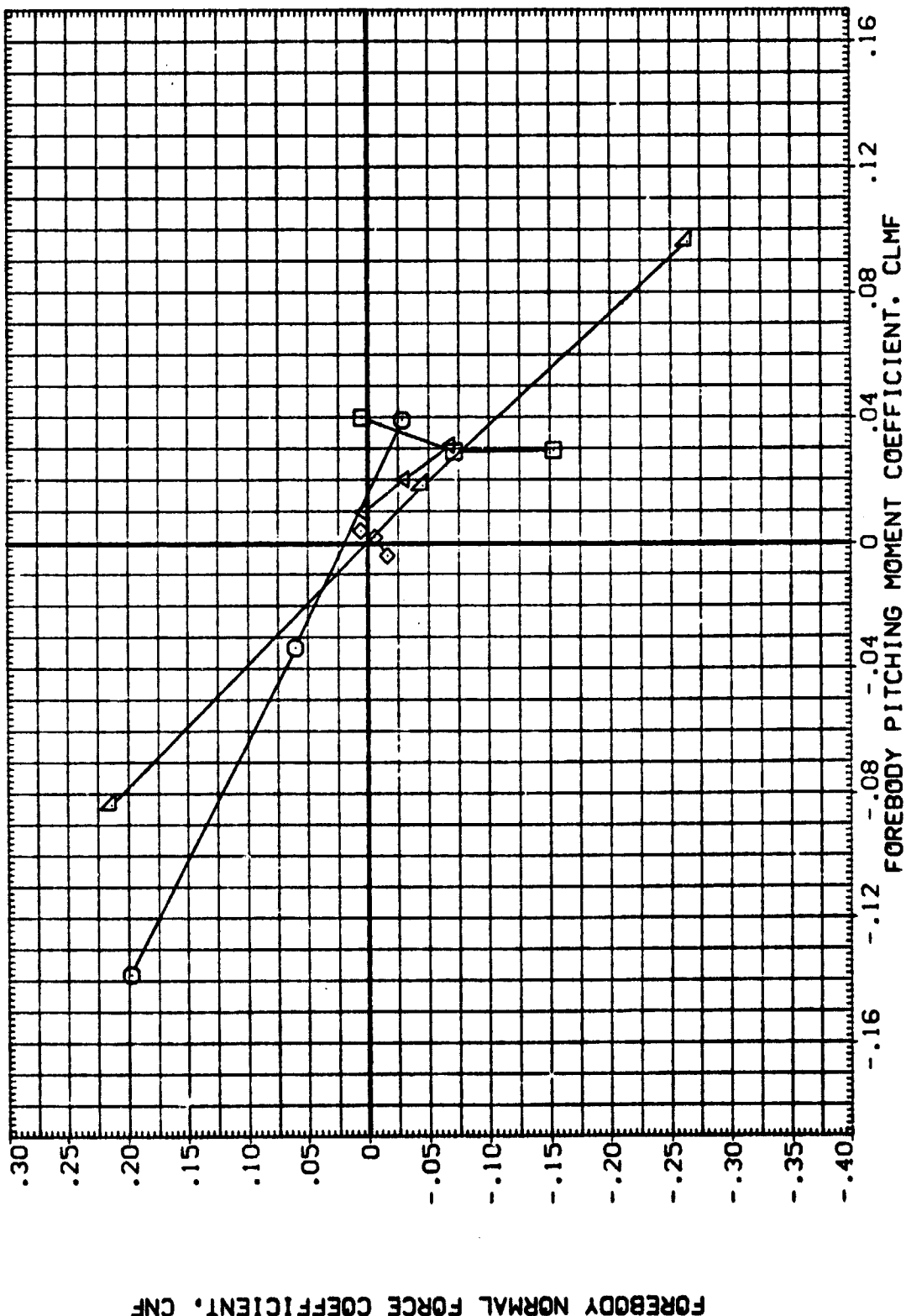


FIG. 10 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0

(F)BETA1 = 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(MET044)	AMES97-019(IAB1) LVAP DRBITTER-ALL HL SEALED	8.000	.000	2.000	.000	JREF 2690.0000 SQ.FT.
(MET144)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(MET144)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.000	.000	GREF 1297.0000 IN.
(MET144)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	.000	2.000	.000	YMRP 976.0000 IN. XT
(MET144)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.000	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

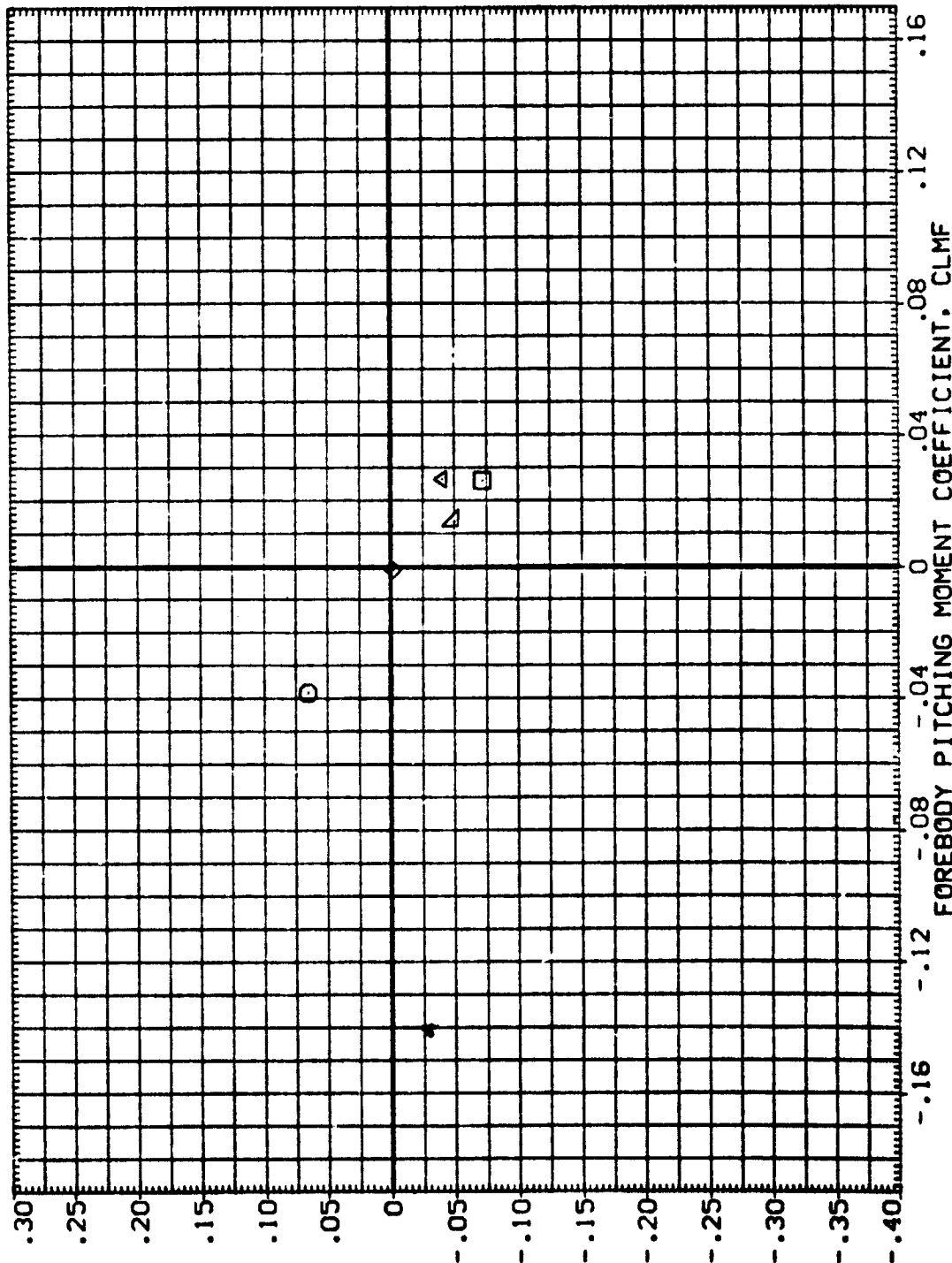


FIG. 10 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SP0BRK	REFERENCE INFORMATION
(MET047)	AMES97-019(IAB1) LVAP ORBITTER-ALL HL SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000 SO.FT.
(MET147)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(METL47)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(METR47)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	10.000	-4.000	2.000	.000	XMRP 976.0000 IN. XT
(MET147)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	10.000	-4.000	2.000	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

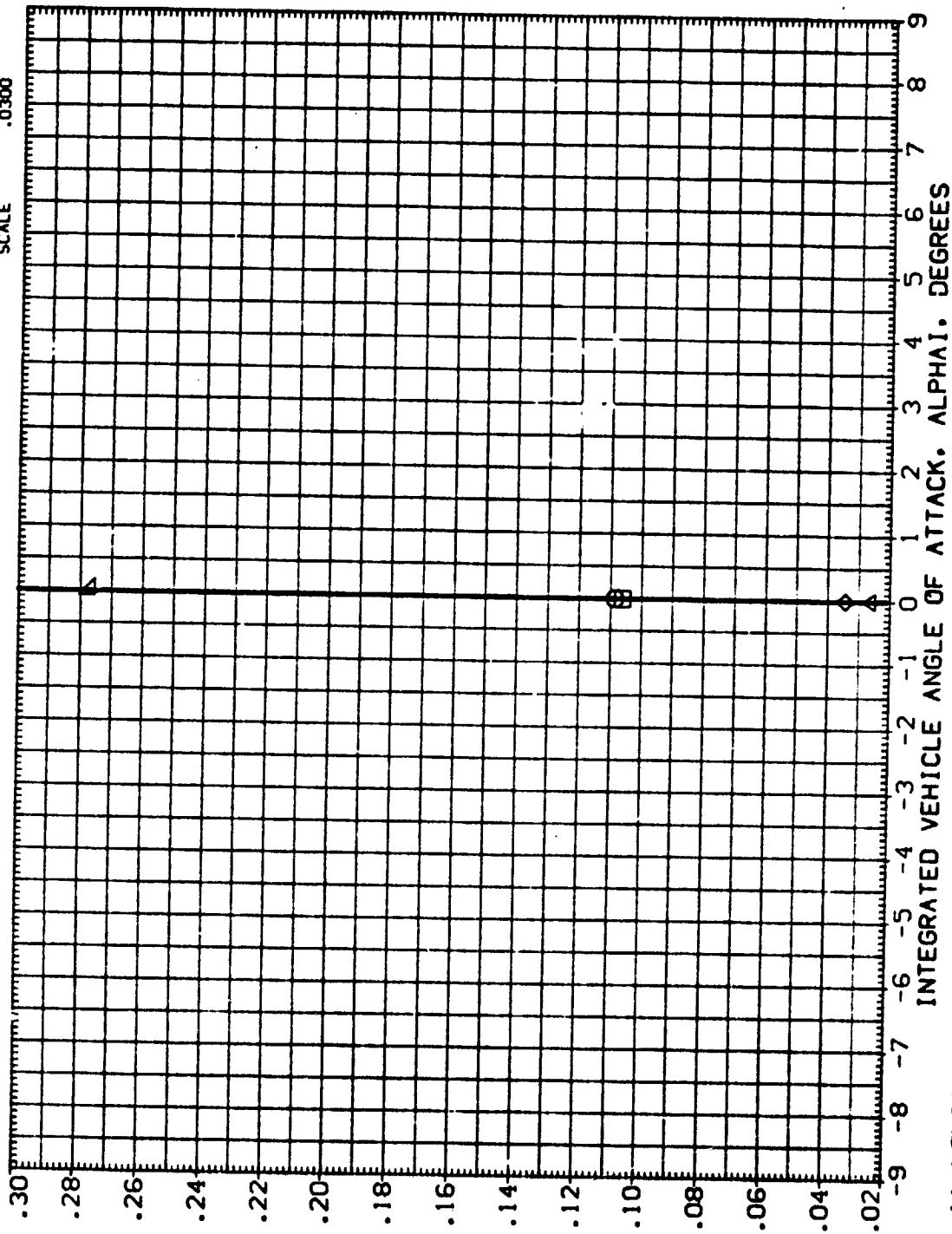


FIG. 11 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4
(A) BET. 1 = -6.00

DATA SET SYMBOL CONFIGURATION DESCRIPTION

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(MET047)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET147)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	10.000	-4.000	2.000	.000	UREF 1297.0000 IN.
(MET147)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(MET147)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	10.000	-4.000	2.000	.000	XMRP 976.0000 IN. XT
(MET147)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	10.000	-4.000	2.000	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

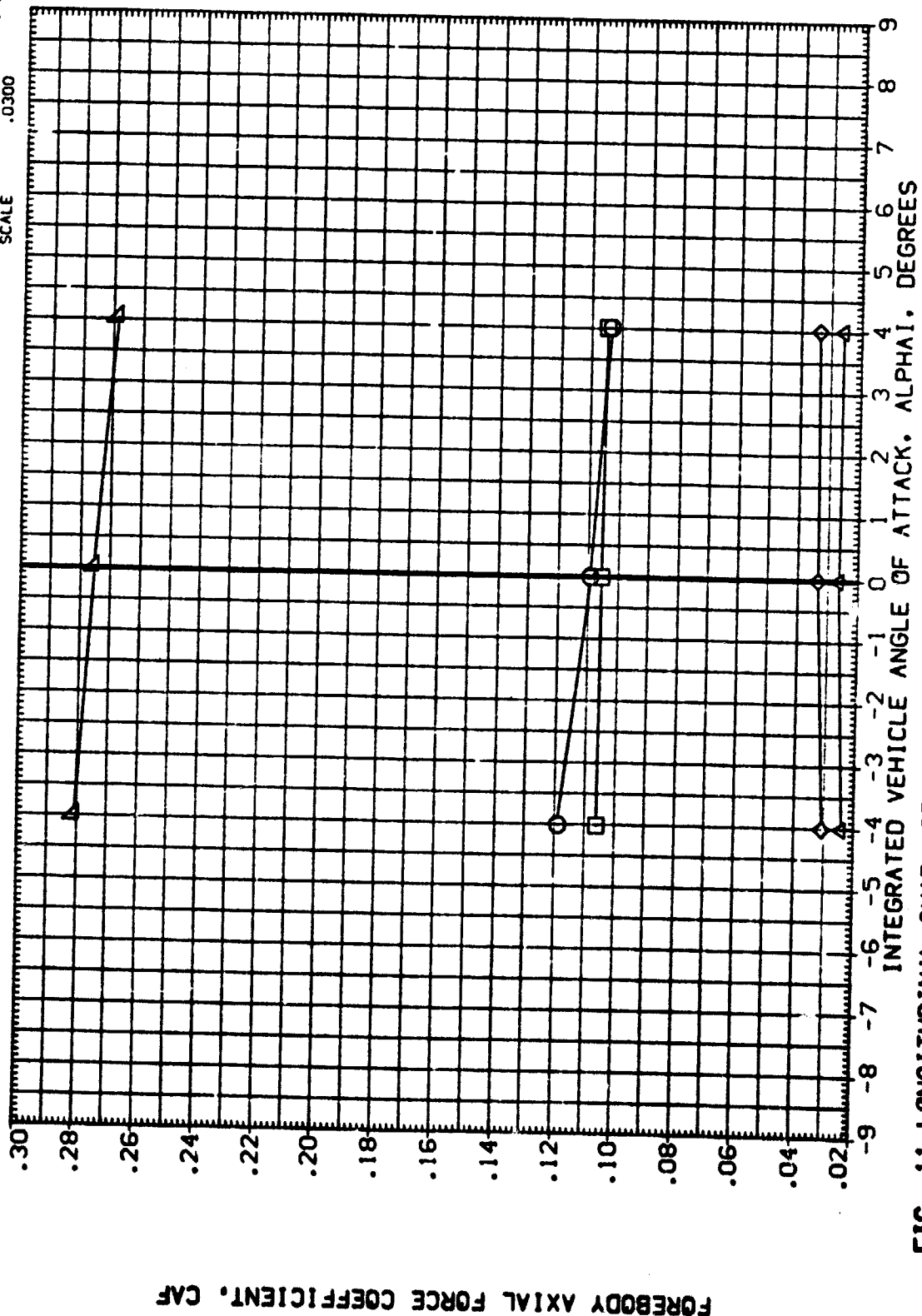


FIG. 11 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4
(B)BETA1 = -4.00

FOREBODY AXIAL FORCE COEFFICIENT, C_{AF}

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(MET047)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET147)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(MET147)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(MET147)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	10.000	-4.000	2.000	.000	XMRP 976.0000 IN. XT
(MET147)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	10.000	-4.000	2.000	.000	YMRP 400.0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

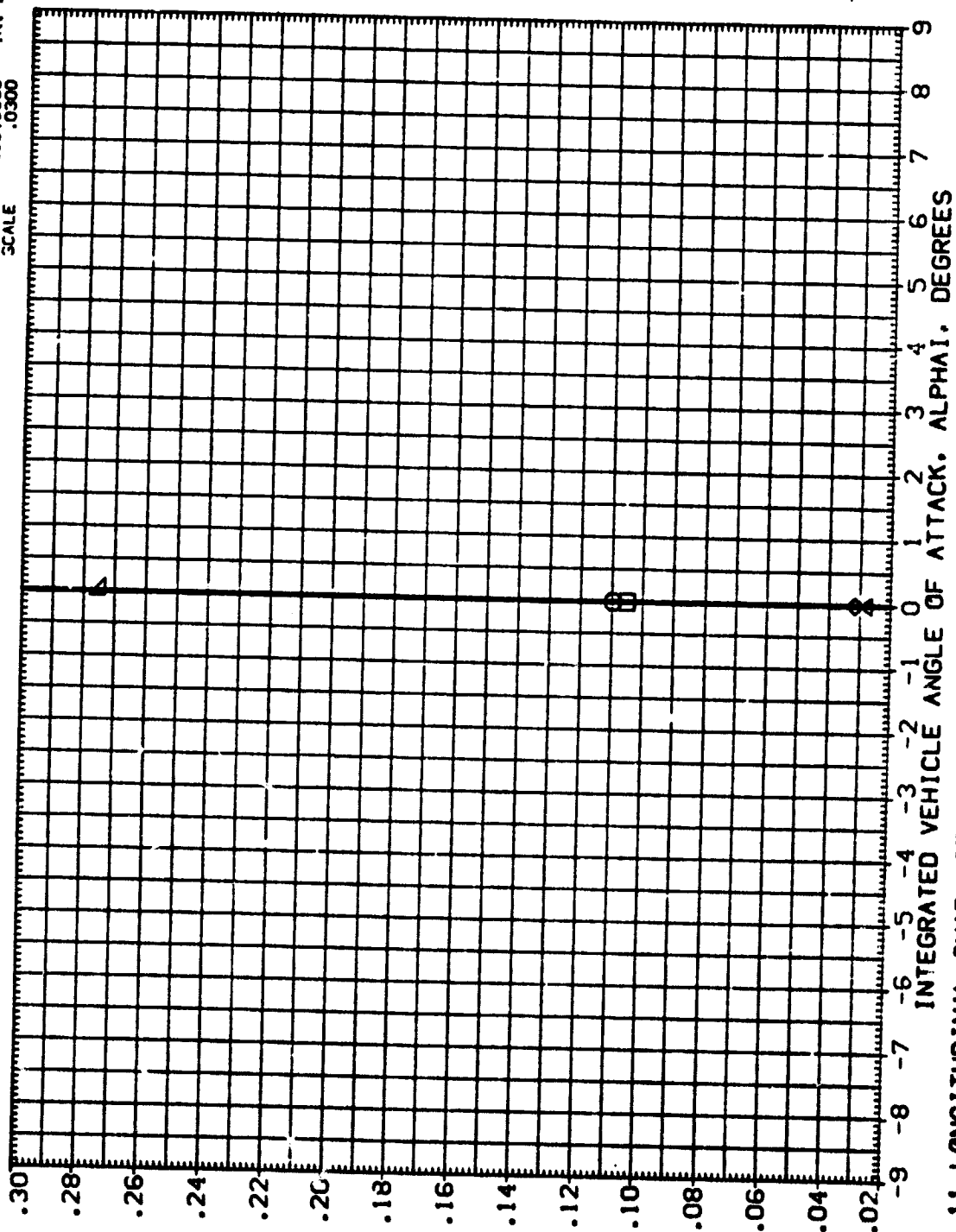


FIG. 11 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4
(C)BET 1 = -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(MET147)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET147)	AMES97-019(IAB1) LVAP (ANK - ALL HL SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(MET147)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(MET147)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	10.000	-4.000	2.000	.000	XMRP 976.0000 IN.
(MET147)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	10.000	-4.000	2.000	.000	YMRP .0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

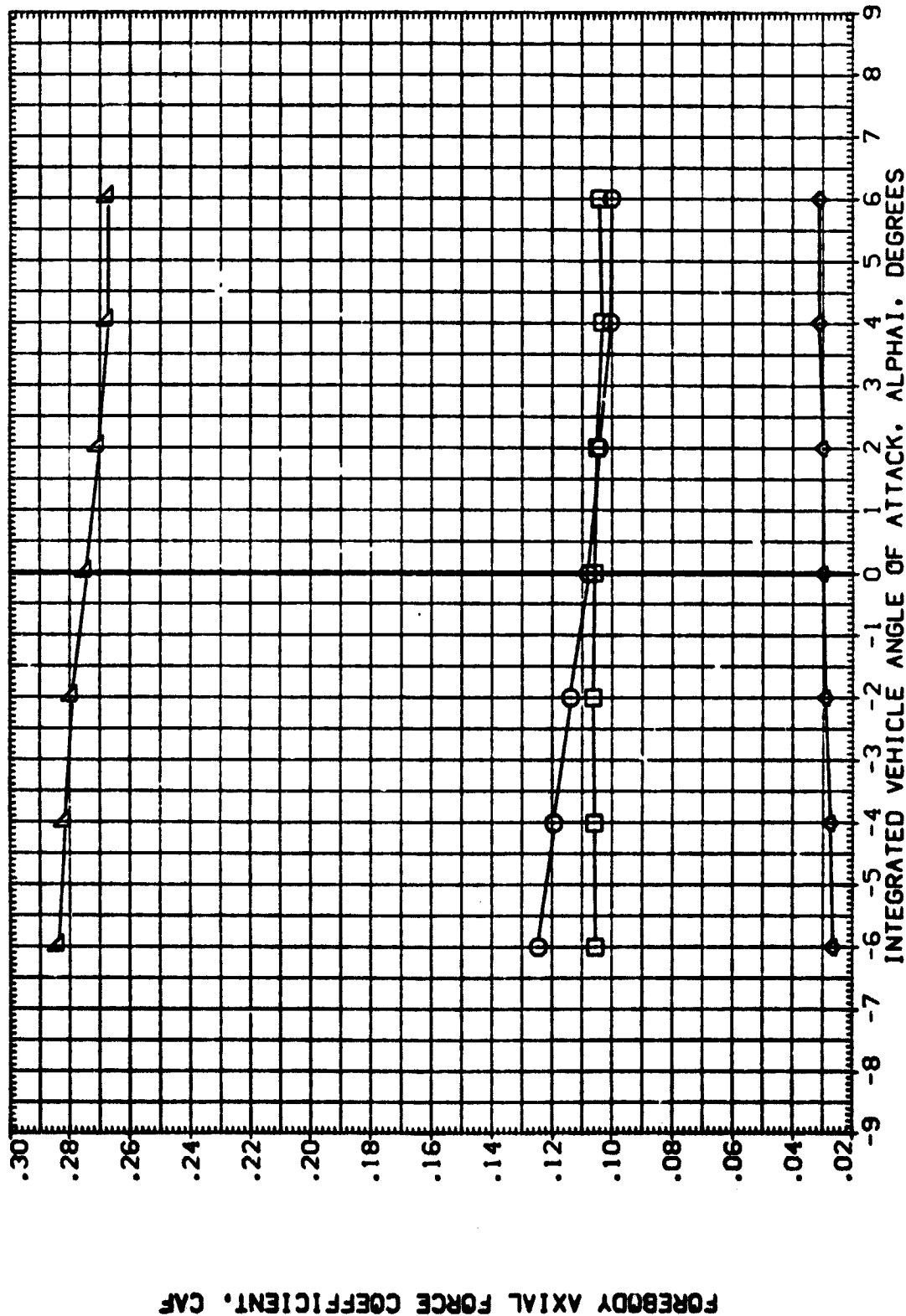
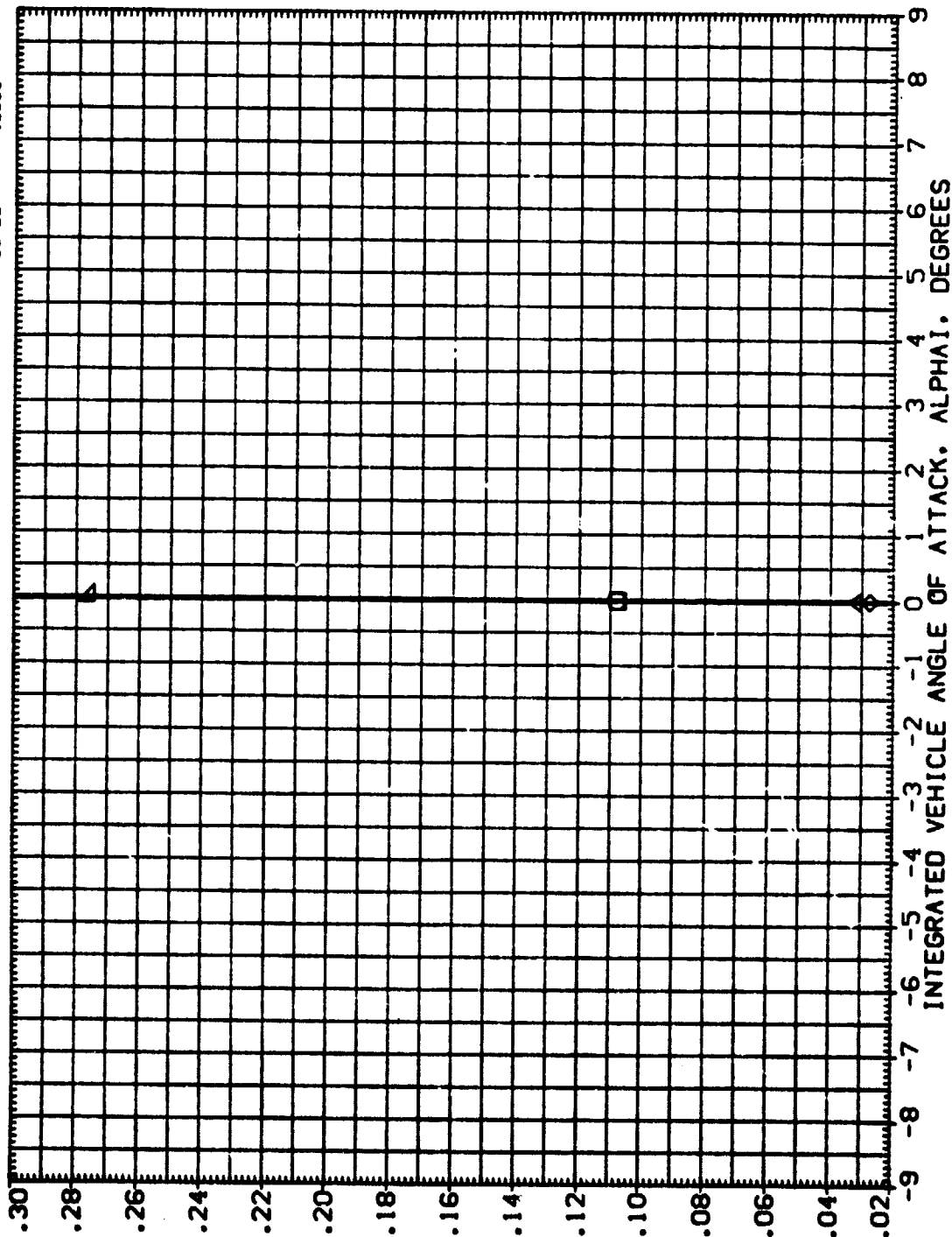


FIG. 11 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4

(O)BET, (I) = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRBK	REFERENCE INFORMATION
(MET147)	AMES97-019(IAB1) LVAP ORBITTER-ALL ML SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000 SO. FT.
(MET147)	AMES97-019(IAB1) LVAP TANK - ALL ML SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(MET147)	AMES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(MET147)	AMES97-019(IAB1) LVAP 3-LRB ALL ML SEALED	10.000	-4.000	2.000	.000	XMRP 976.0000 IN. XI
						ZMRP 400.0000 IN. YI
						SCALE .0300



FOREBODY AXIAL FORCE COEFFICIENT, C_{af}

FIG. 11 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4

(E)BET.1 = 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(MET047)	AMES97-019(IAB1) LVAP ORBITER-ALL ML SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET147)	AMES97-019(IAB1) LVAP TANK - ALL ML SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(MET147)	AMES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(MET147)	AMES97-019(IAB1) LVAP R-LRB ALL ML SEALED	10.000	-4.000	2.000	.000	XMRP 976.0000 IN. XT
(MET147)	AMES97-019(IAB1) LVAP INT VEH ALL ML SEALED	10.000	-4.000	2.000	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

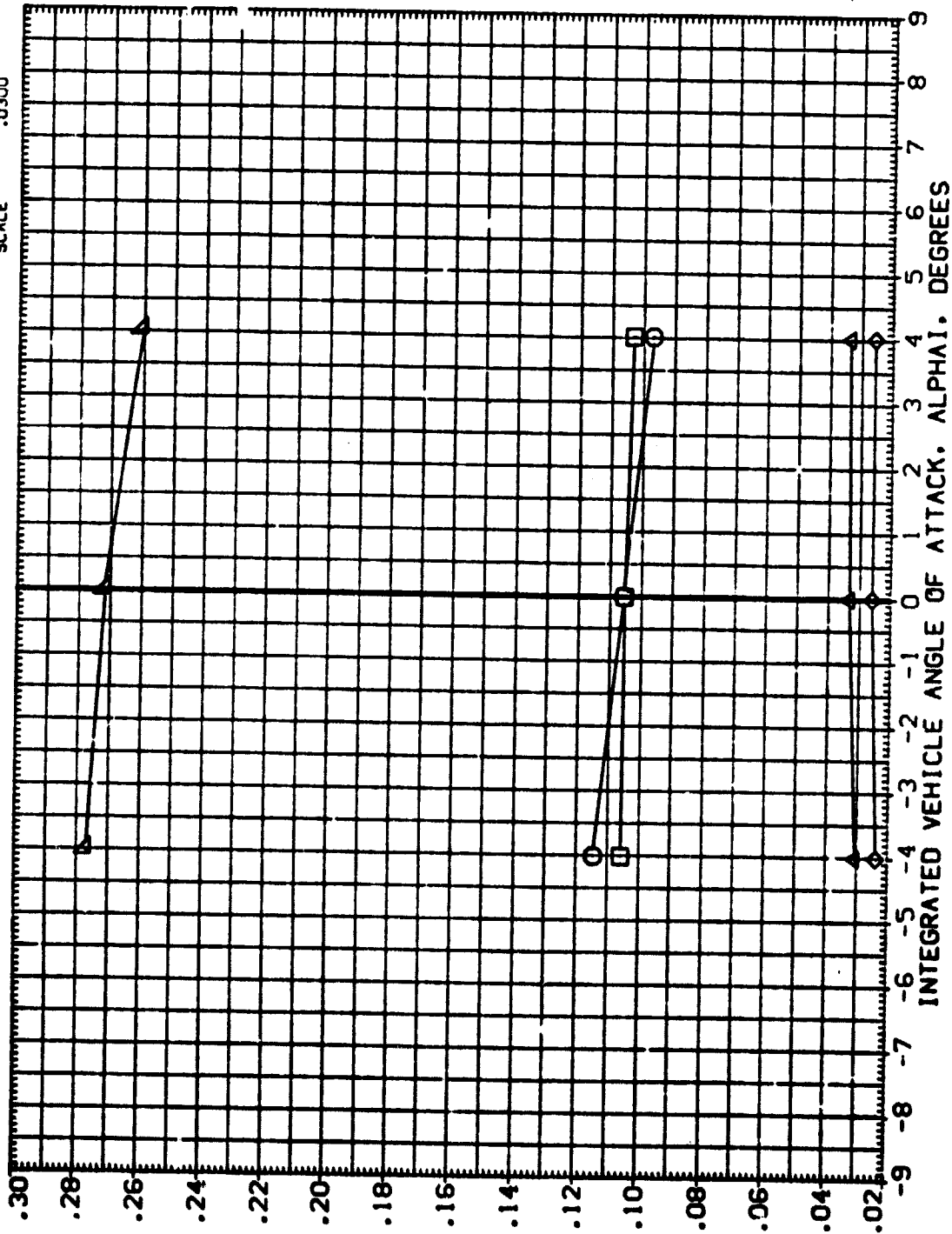


FIG. 11 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4

(F)BET.1 = 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPOBRK	REFERENCE INFORMATION
(MET147)	AMES97-019(IAB1) LVAP ORBITER-ALL ML SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000 SD.FT.
(MET147)	AMES97-019(IAB1) LVAP TANK - ALL ML SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(MET147)	AMES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(MET147)	AMES97-019(IAB1) LVAP R-CRB - ALL ML SEALED	10.000	-4.000	2.000	.000	XMRP 976.0000 IN.
(MET147)	AMES97-019(IAB1) LVAP INT VEH ALL ML SEALED	10.000	-4.000	2.000	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

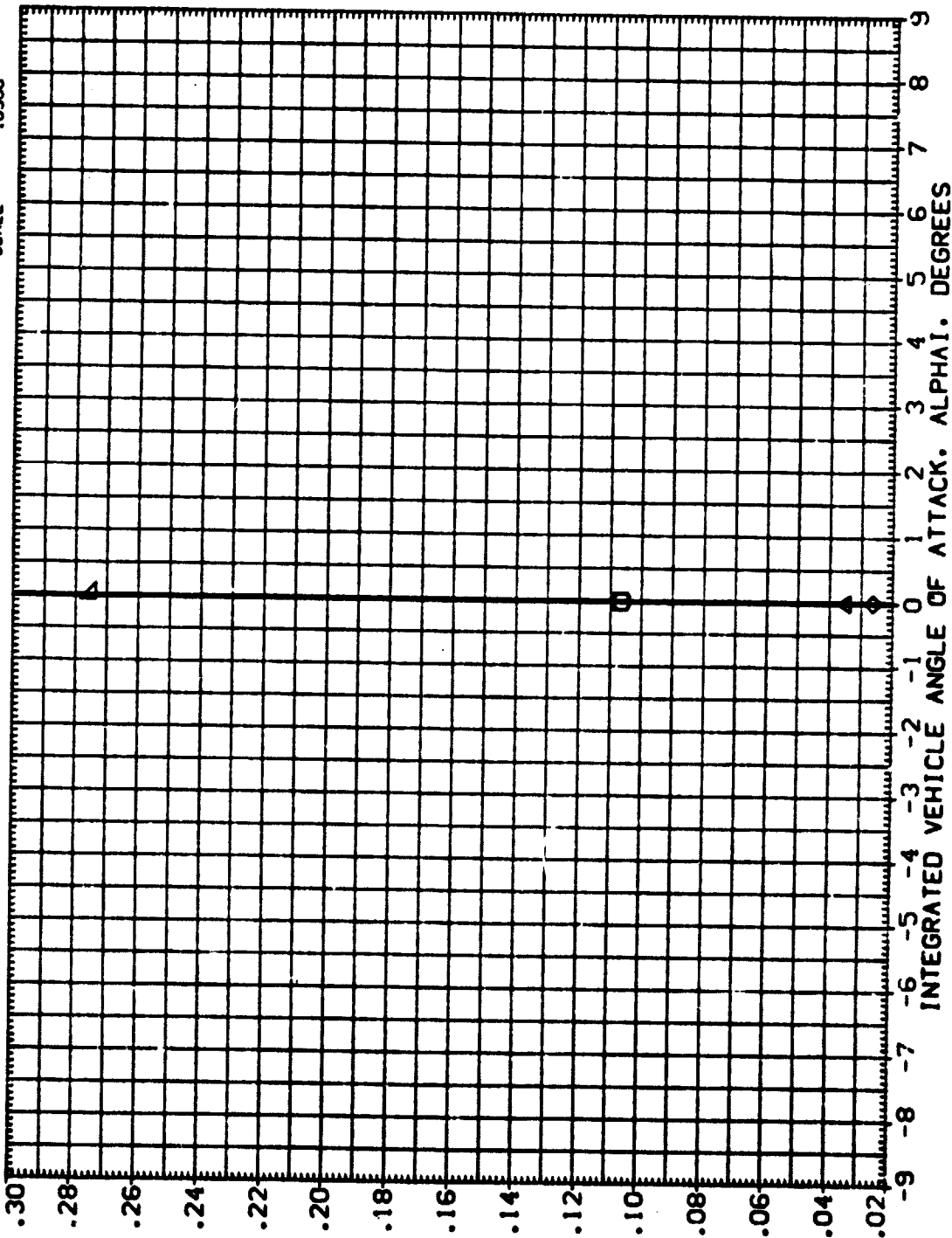
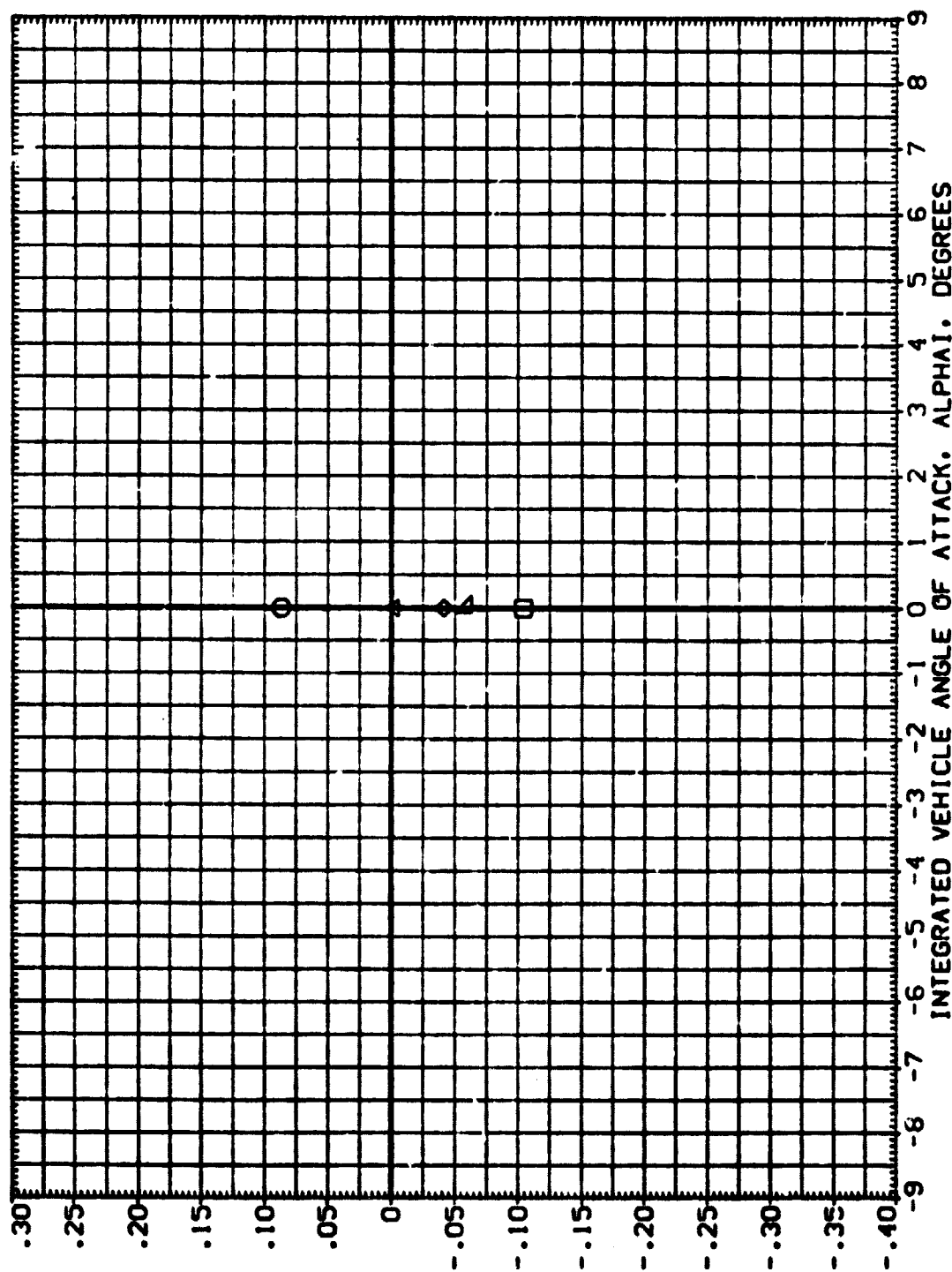


FIG. 11 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4

(G)BET.I = 6.00

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(MET047)	□	AME597-0191(AB1) LVAP ORBITER-ALL M. SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET147)	□	AME597-0191(AB1) LVAP TANK - ALL M. SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(METL47)	□	AME597-0191(AB1) LVAP L-SRB - ALL M. SEALED	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(METR47)	□	AME597-0191(AB1) LVAP R-LRB - ALL M. SEALED	10.000	-4.000	2.000	.000	XMRP 976.0000 IN.
(MET147)	□	AME597-0191(AB1) LVAP INT VEN - ALL M. SEALED	10.000	-4.000	2.000	.000	YMRP 400.0000 IN.
							ZMRP 400.0000 IN.
							SCALE .0300



FOREBODY NORMAL FORCE COEFFICIENT, CNF

FIG. 11 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4
(A)BET.1 = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPODRK	REFERENCE INFORMATION
(MET147)	AMES97-019(IAB1) LVAP ORBITER-ALL M1 SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET147)	AMES97-019(IAB1) LVAP TANK - ALL M1 SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(MET147)	AMES97-019(IAB1) LVAP L-SRB - ALL M1 SEALED	10.000	-4.000	2.000	.000	BREF 976.0000 IN. XT
(MET147)	AMES97-019(IAB1) LVAP R-LRB - ALL M1 SEALED	10.000	-4.000	2.000	.000	YMRP 400.0000 IN. YT
(MET147)	AMES97-019(IAB1) LVAP INT VEH ALL M1 SEALED	10.000	-4.000	2.000	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

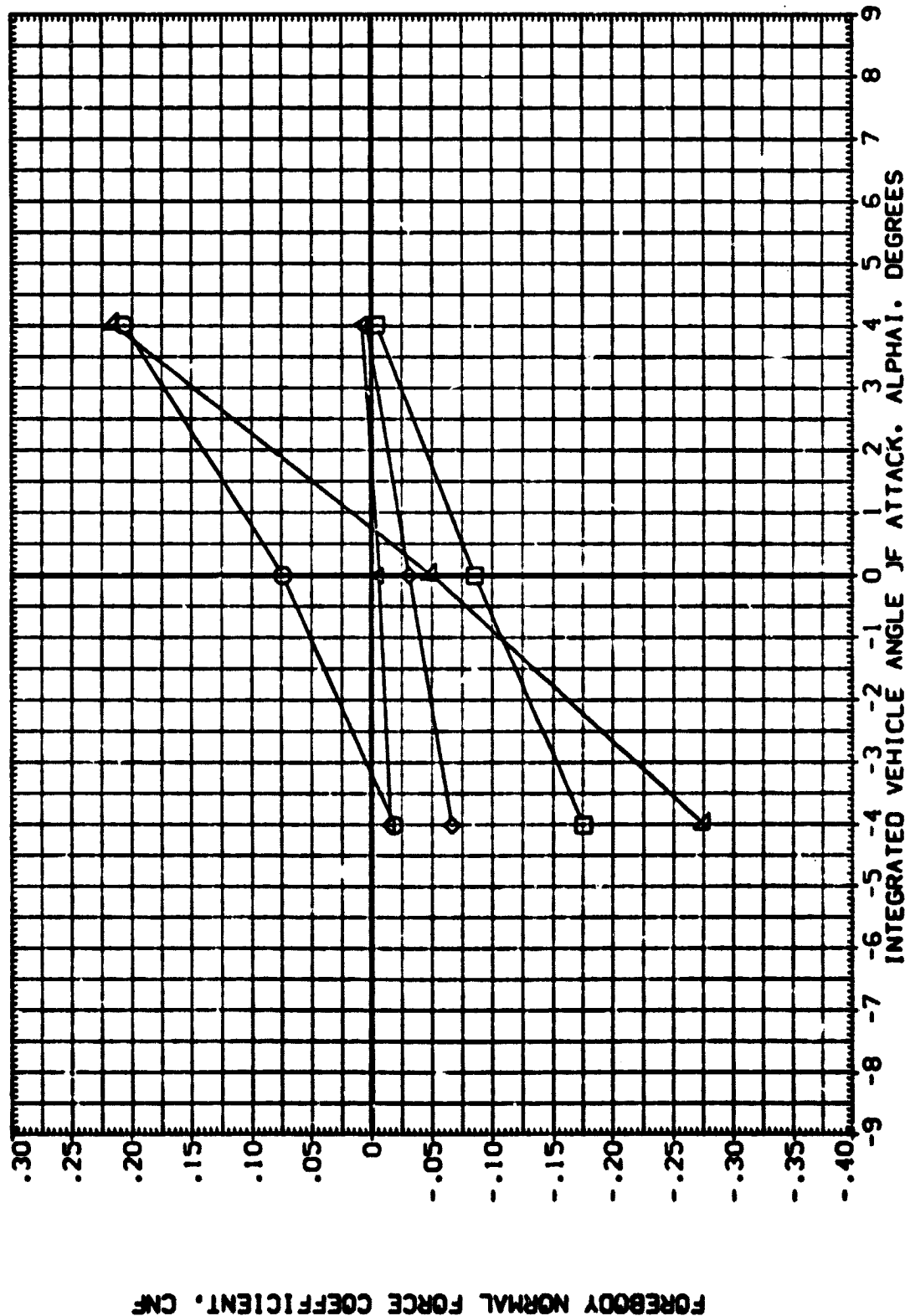


FIG. 11 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(MET047)	AME897-019K(1A91) LVAP ORBITER-ALL HL SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET147)	AME897-019K(1A91) LVAP TANK - ALL HL SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(MET147)	AME897-019K(1A91) LVAP L-SUB - ALL HL SEALED	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(MET147)	AME897-019K(1A91) LVAP R-LOG ALL HL SEALED	10.000	-4.000	2.000	.000	XMREF 976.0000 IN. XT
(MET147)	AME897-019K(1A91) LVAP INT VEH ALL HL SEALED	10.000	-4.000	2.000	.000	YMREF .0000 IN. YT
						ZMREF 400.0000 IN. ZT
						SCALE .0300

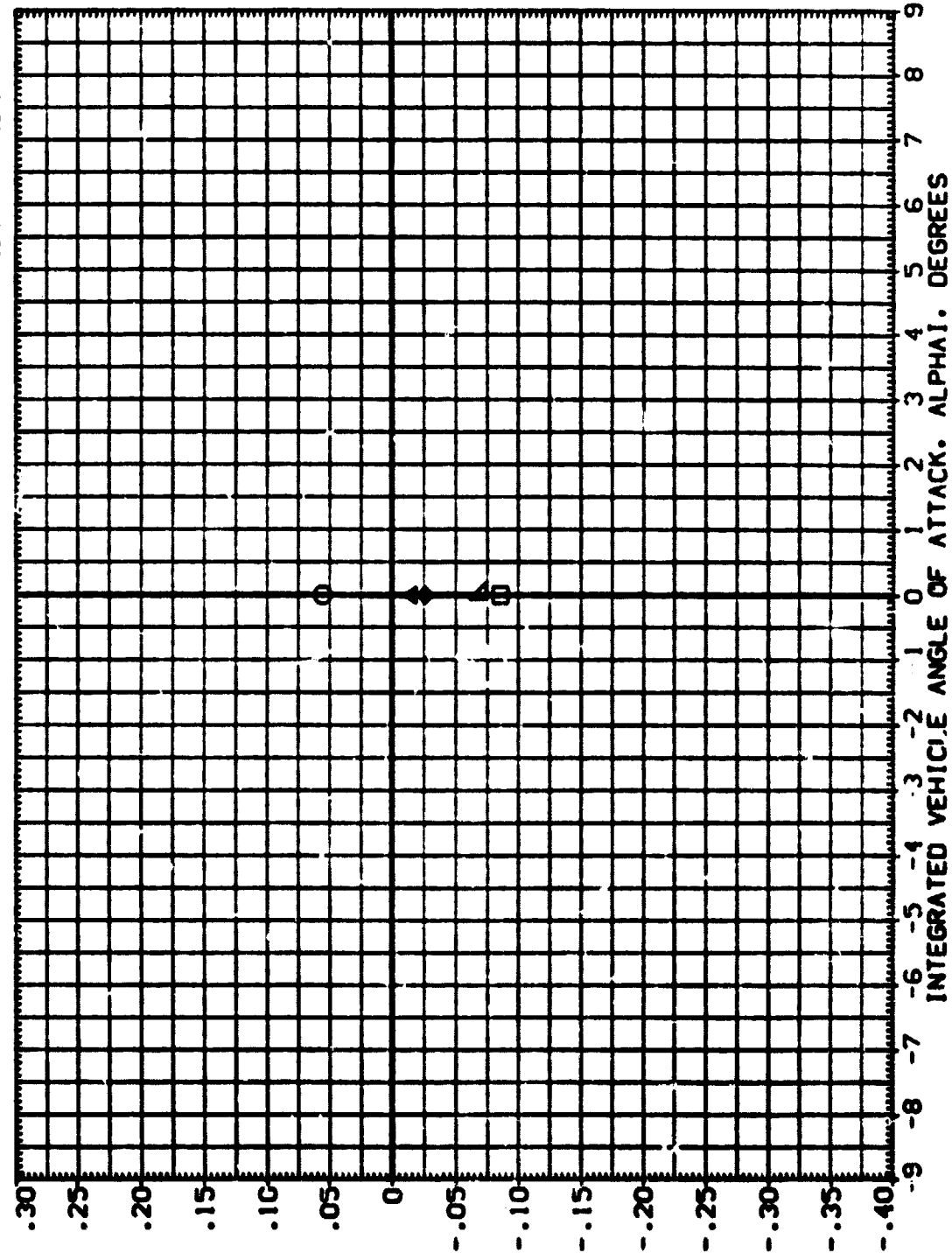


FIG. 11 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS. M=2.0 DEV=10/-4

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ORBITER-ALL	ML	SEALED	ELV-18	ELV-08	NACH	SPOBRK	REFERENCE INFORMATION
(MET1047)	AME597-013(IAB1) LVAP	TANK	- ALL	ML SEALED	10.000	-4.000	2.000	.000	SREF 2650.0000 SQ.FT.
(MET1047)	AME597-013(IAB1) LVAP	L-508	- ALL	ML SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(MET1047)	AME597-013(IAB1) LVAP R-LPB	ALL	ML	SEALED	10.000	-4.000	2.000	.000	BREF 1257.0000 IN.
(MET1047)	AME597-013(IAB1) LVAP INT VEH	ALL	ML	SEALED	10.000	-4.000	2.000	.000	YREF 976.0000 IN. XT
									ZREF 400.0000 IN. YT
									SCALE .0300

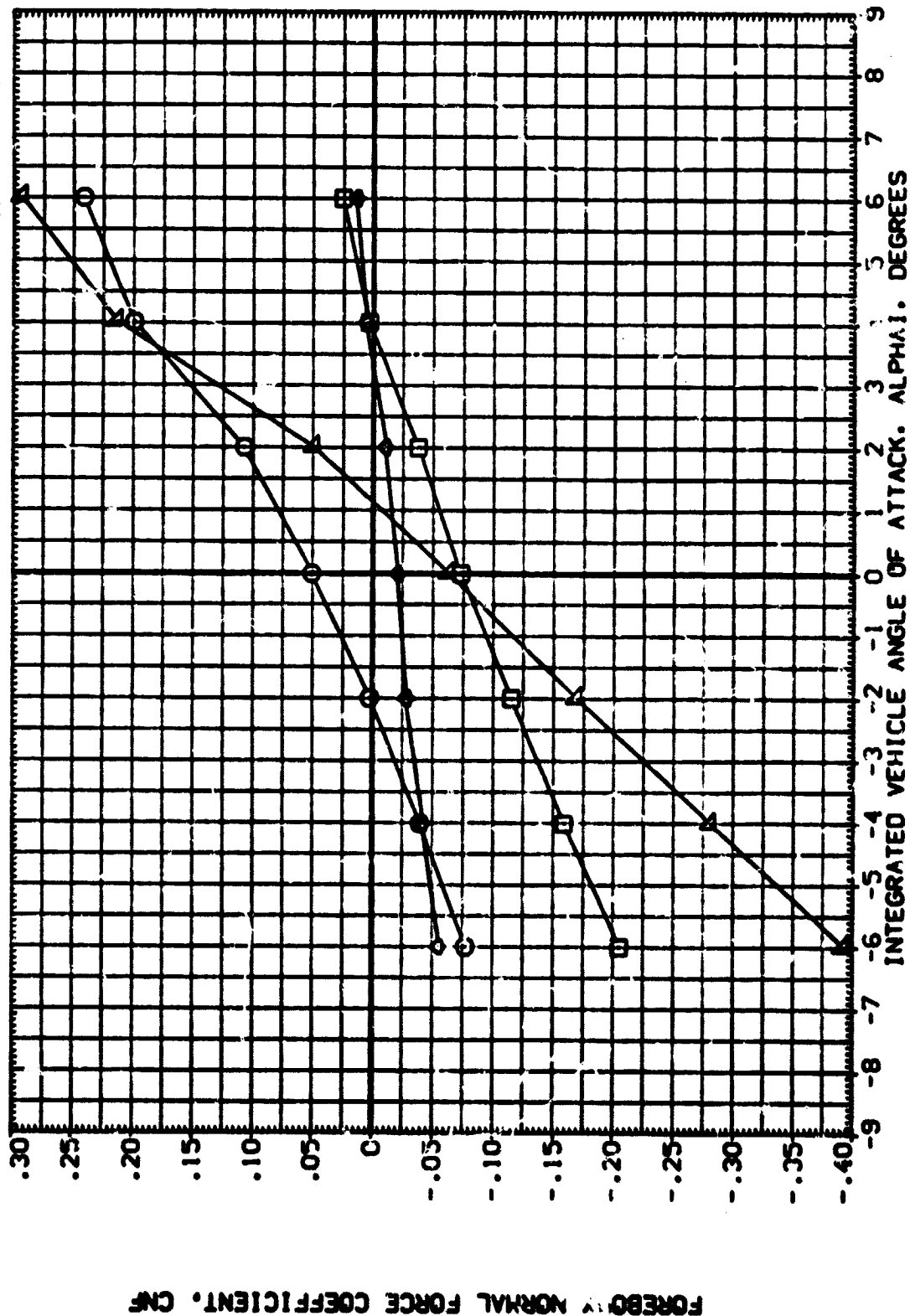


FIG. 11 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, N=2.0 DEV=10/-4

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(MET047)	AMES97-019(IAB1) LVAP ORSITER-ALL HL SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET147)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(MET147)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(MET147)	AMES97-019(IAB1) LVAP R-LPB - ALL HL SEALED	10.000	-4.000	2.000	.000	XMRP 976.0000 IN. XT
(MET147)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	10.000	-4.000	2.000	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

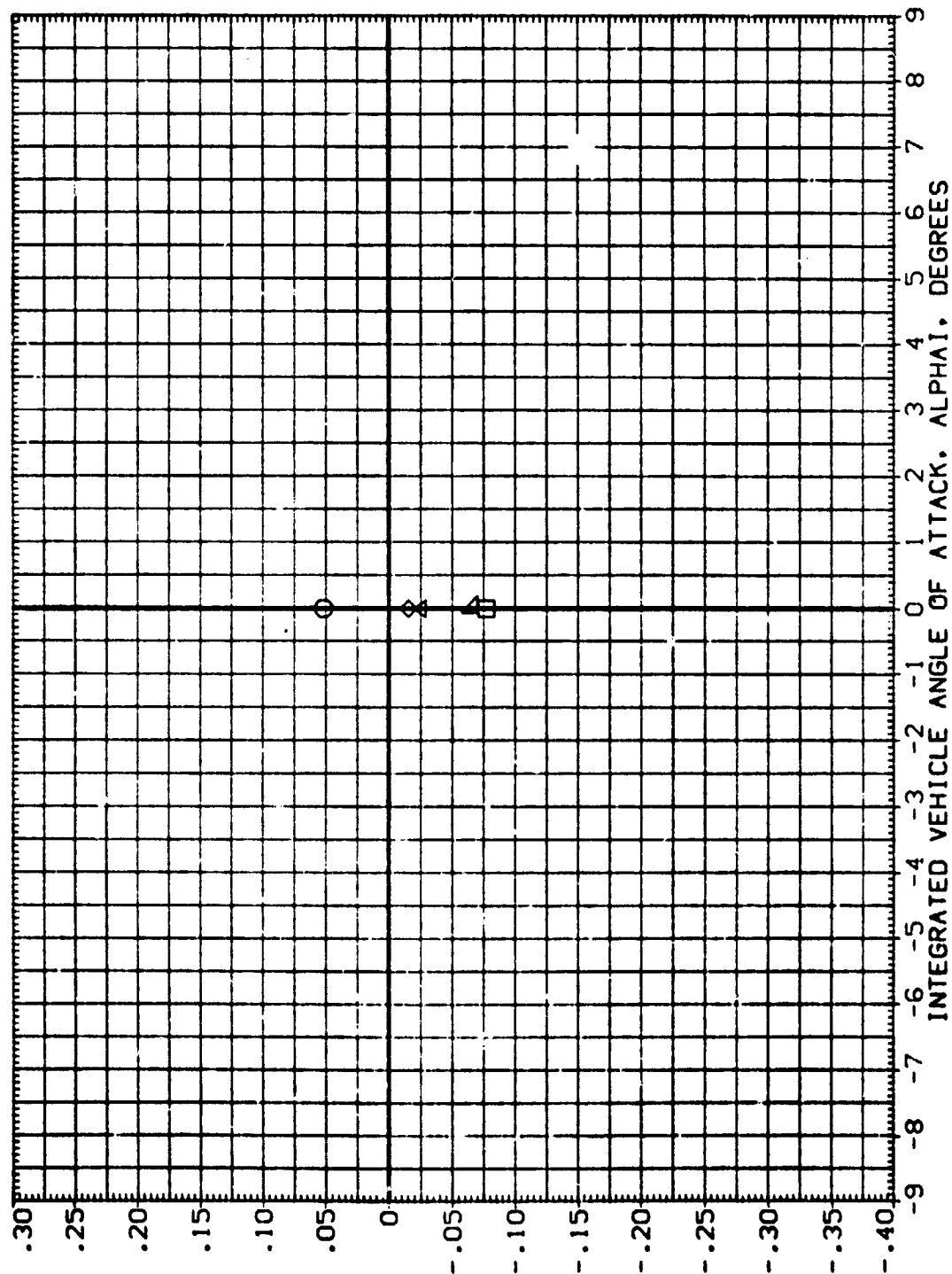
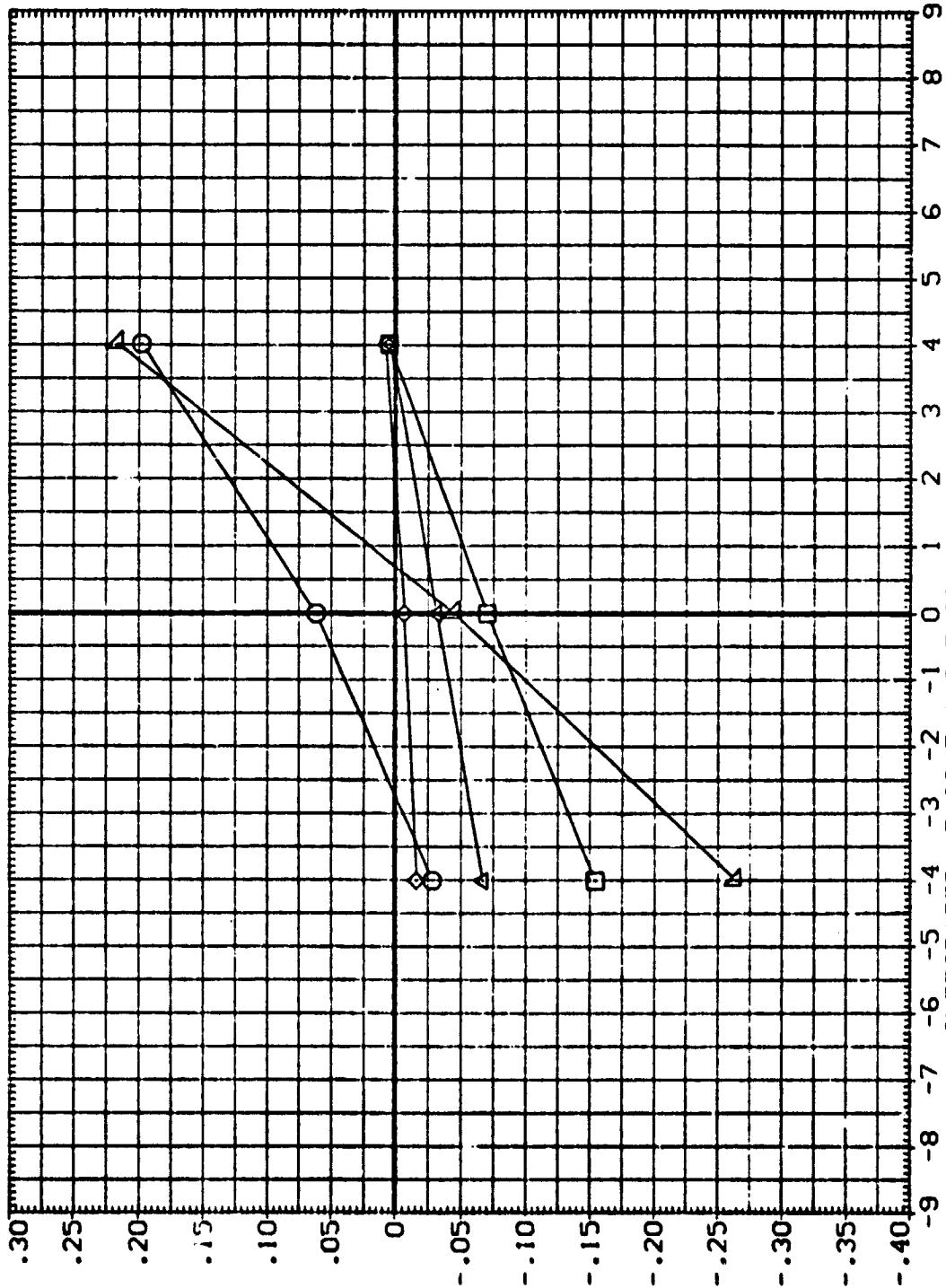


FIG. 11 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4

(E)BET.1 = 2.00

REPRODUCIBILITY OF THE
ORIGINAL PAGE IS 100%

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(MET047)	AMES97-019C(1A81) LVAP ORBITER-ALL HL SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET147)	AMES97-019C(1A81) LVAP TANK - ALL HL SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(METL47)	AMES97-019C(1A81) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(METR47)	AMES97-019C(1A81) LVAP R-LRB ALL HL SEALED	10.000	-4.000	2.000	.000	XMRP 976.0000 IN. XT
(MET1147)	AMES97-019C(1A81) LVAP INT VEH ALL HL SEALED	10.000	-4.000	2.000	.000	YMRP 400.0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300



FOREBODY NORMAL FORCE COEFFICIENT, CNF

INTEGRATED VEHICLE ANGLE OF ATTACK, ALPHA, DEGREES

FIG. 11 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4

(F)BET.1 = 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPOBRK	REFERENCE INFORMATION
(MET147)	AMES97-019(IAB1) LVAP	10.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET147)	AMES97-019(IAB1) LVAP	10.000	-4.000	2.000	.000	L-REF 1297.0000 IN.
(MET147)	AMES97-019(IAB1) LVAP	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(MET147)	AMES97-019(IAB1) LVAP	10.000	-4.000	2.000	.000	XMRP 976.0000 IN. XT
(MET147)	AMES97-019(IAB1) LVAP	10.000	-4.000	2.000	.000	YMRP 400.0000 IN. YT
						SCALE .0300

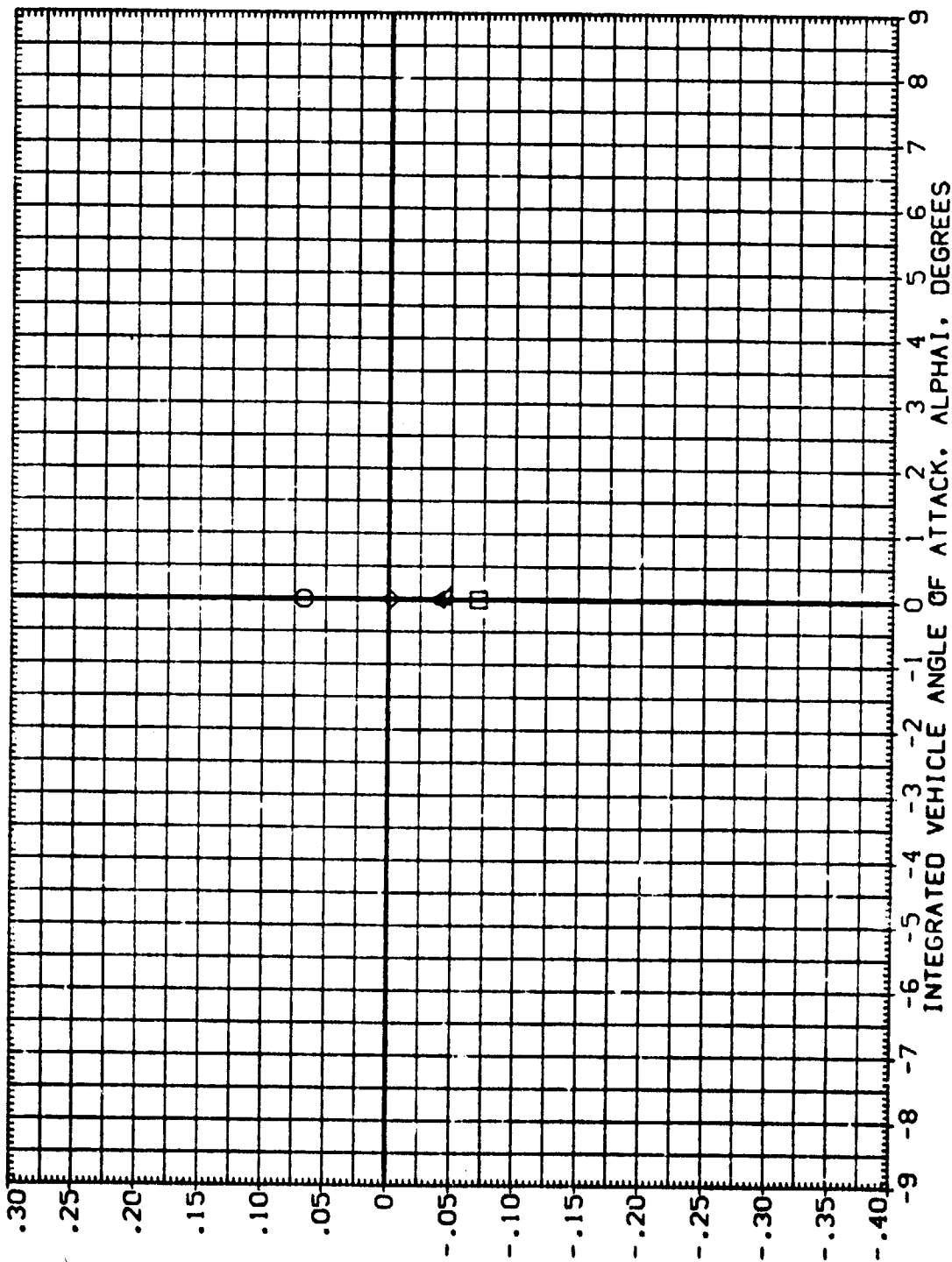


FIG. 11 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4

(G)BET.1 = 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SP0BRK	REFERENCE INFORMATION
(MET047)	AMES97-019(1A81) LVAP OPBITER-ALL HL SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000 SO.FT.
(MET147)	AMES97-019(1A81) LVAP TAPK - ALL HL SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(MET147)	AMES97-019(1A81) LVAP L-SAB - ALL HL SEALED	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(MET147)	AMES97-019(1A81) LVAP R-LPB - ALL HL SEALED	10.000	-4.000	2.000	.000	XMRP 976.0000 IN. XT
(MET147)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	10.000	-4.000	2.000	.000	YMRP 400.0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

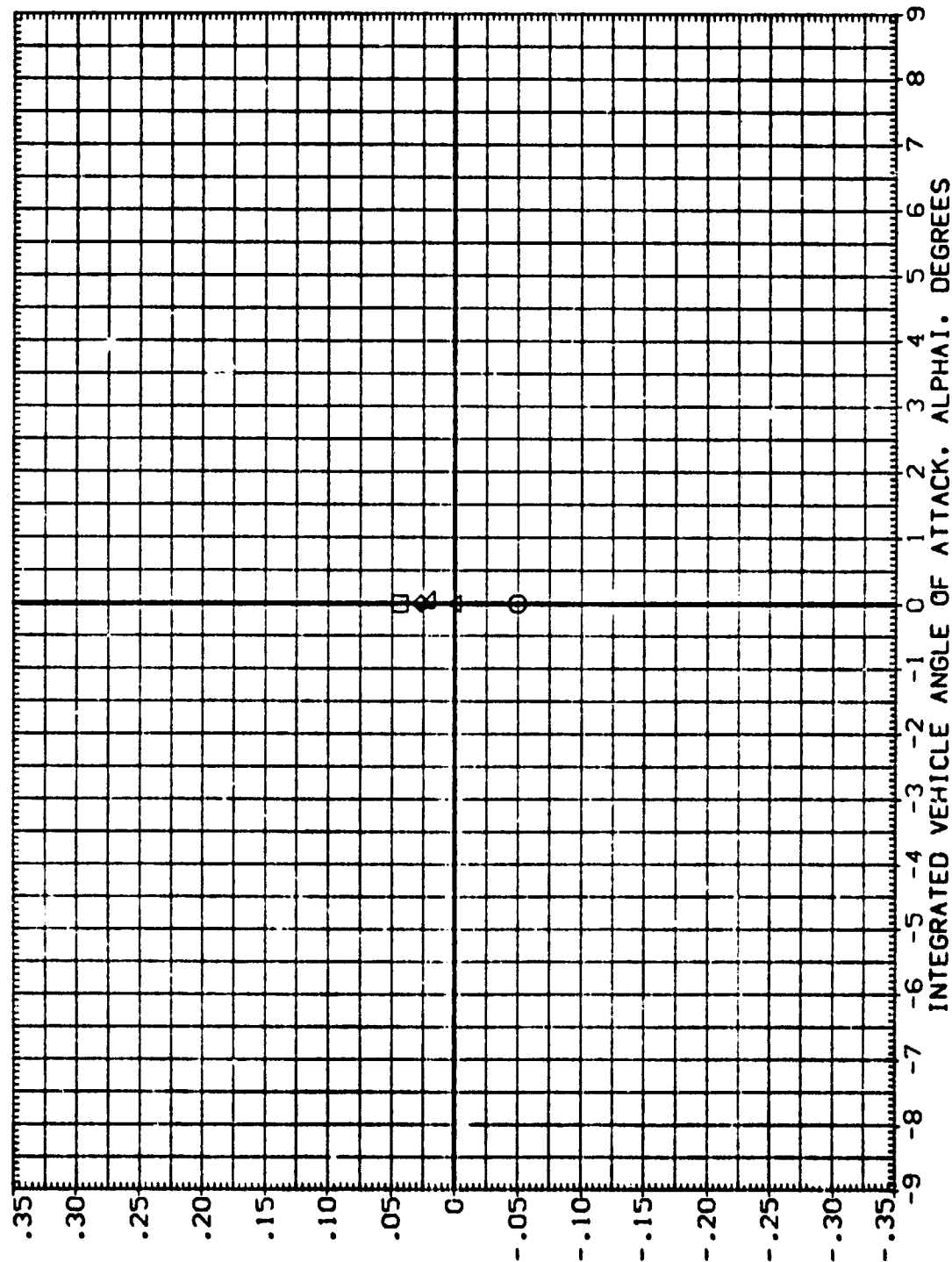


FIG. 11 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4

(A)BETAI = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(MET047)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET147)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(METL47)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(METR47)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	10.000	-4.000	2.000	.000	XI-3P 976.0000 IN.
(MET147)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	10.000	-4.000	2.000	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0303

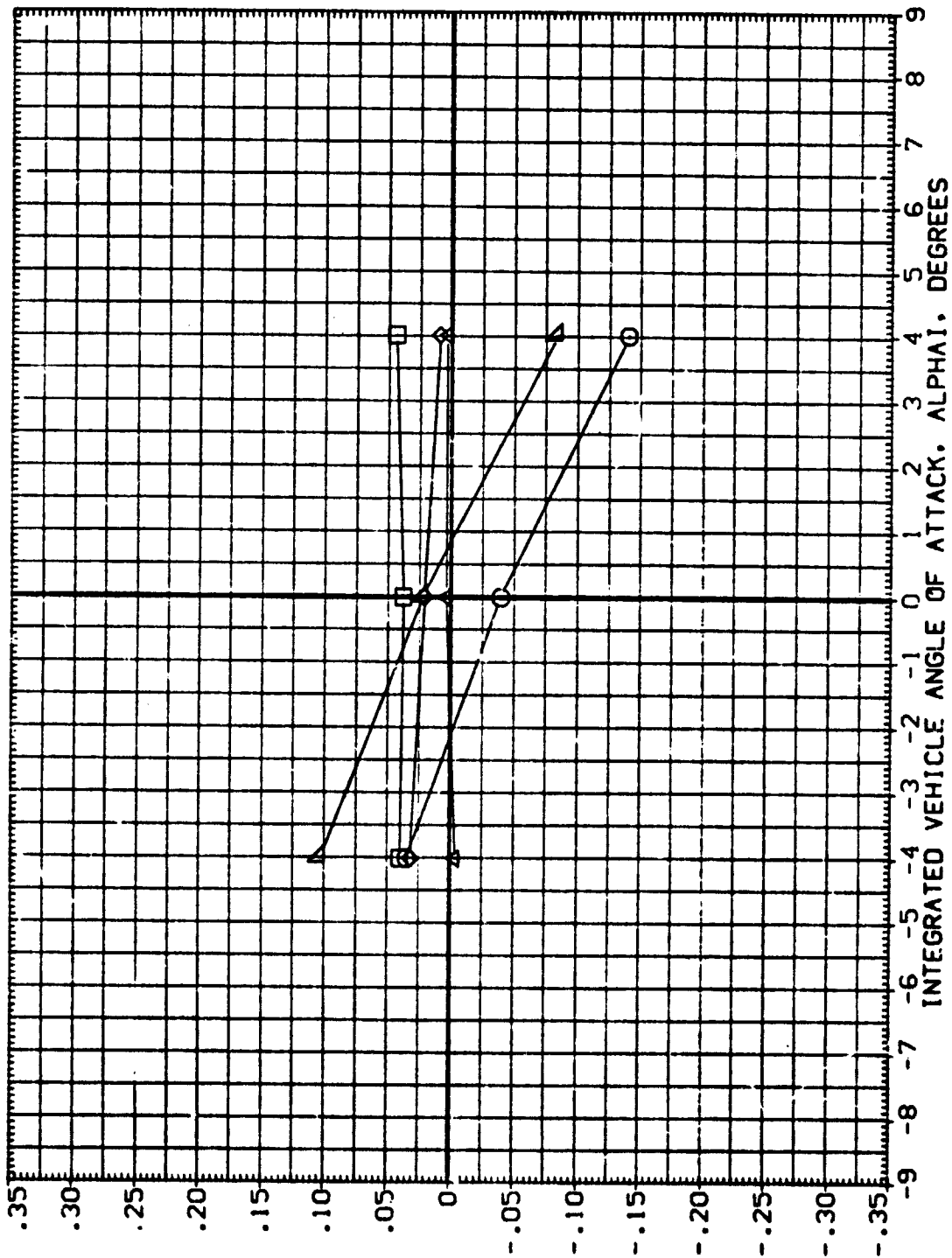


FIG. 11 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=2.0$ $DEV=10/-4$

(B)BET.1 = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-19	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(MET047)	AMES97-019(IAB1) LVAP ORBITTER-ALL HL SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET147)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(MET147)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(MET147)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	10.000	-4.000	2.000	.000	XMRP 976.0000 IN. XT
(MET147)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	10.000	-4.000	2.000	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

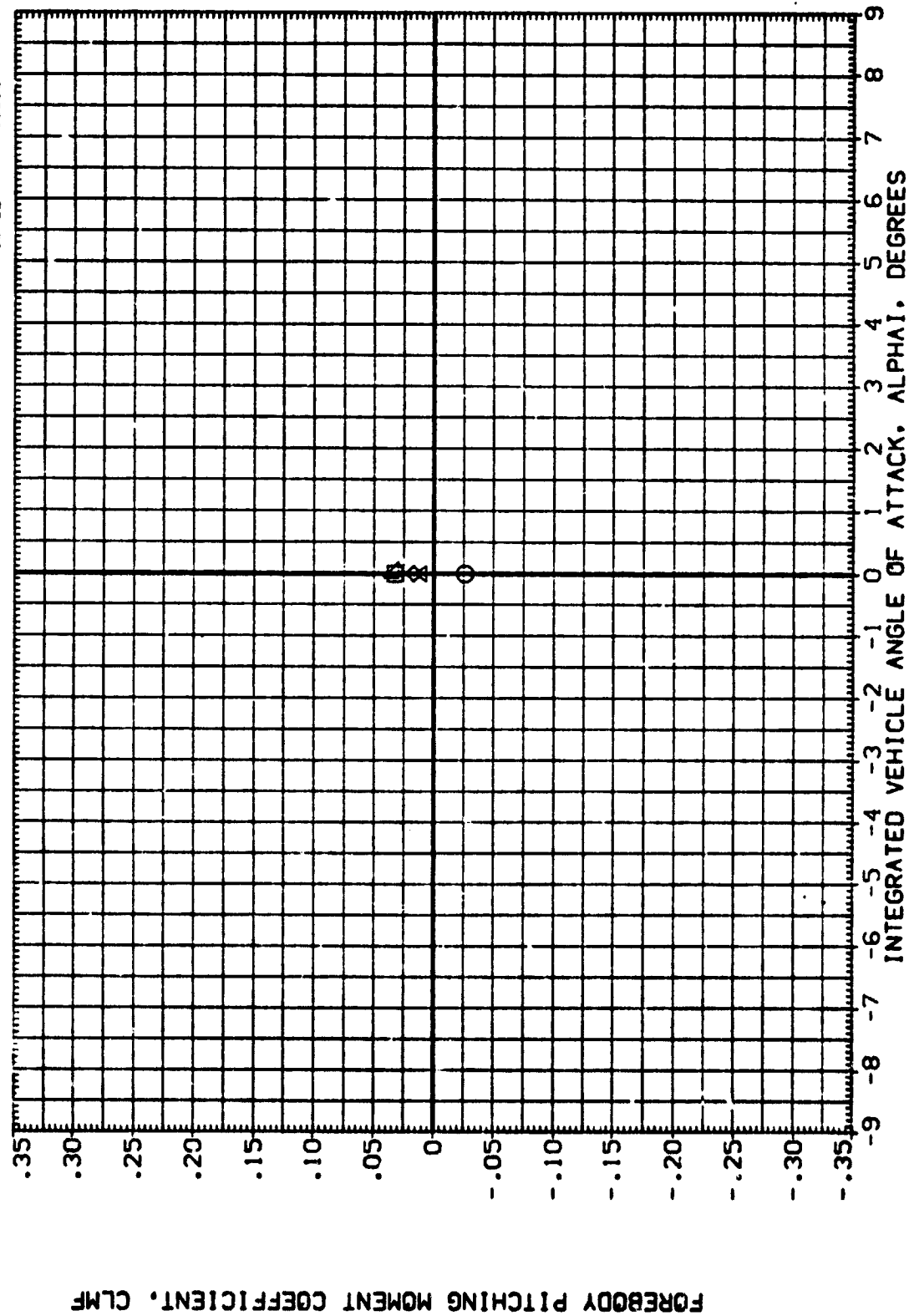


FIG. 11 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS. M=2.0 DEV=10/-4

(CBETA) = -2.00

DATA SET SYMOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(MET047)	AMES97-019C(IAB1) LVAP CRBITER-ALL HL SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET147)	AMES97-019C(IAB1) LVAP LANK - ALL HL SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(METL47)	AMES97-019C(IAB1) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(METR47)	AMES97-019C(IAB1) LVAP R-LRB ALL HL SEALED	10.000	-4.000	2.000	.000	XMRP 976.0000 IN.
(METI47)	AMES97-019C(IAB1) LVAP INT VEM ALL HL SEALED	10.000	-4.000	2.000	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

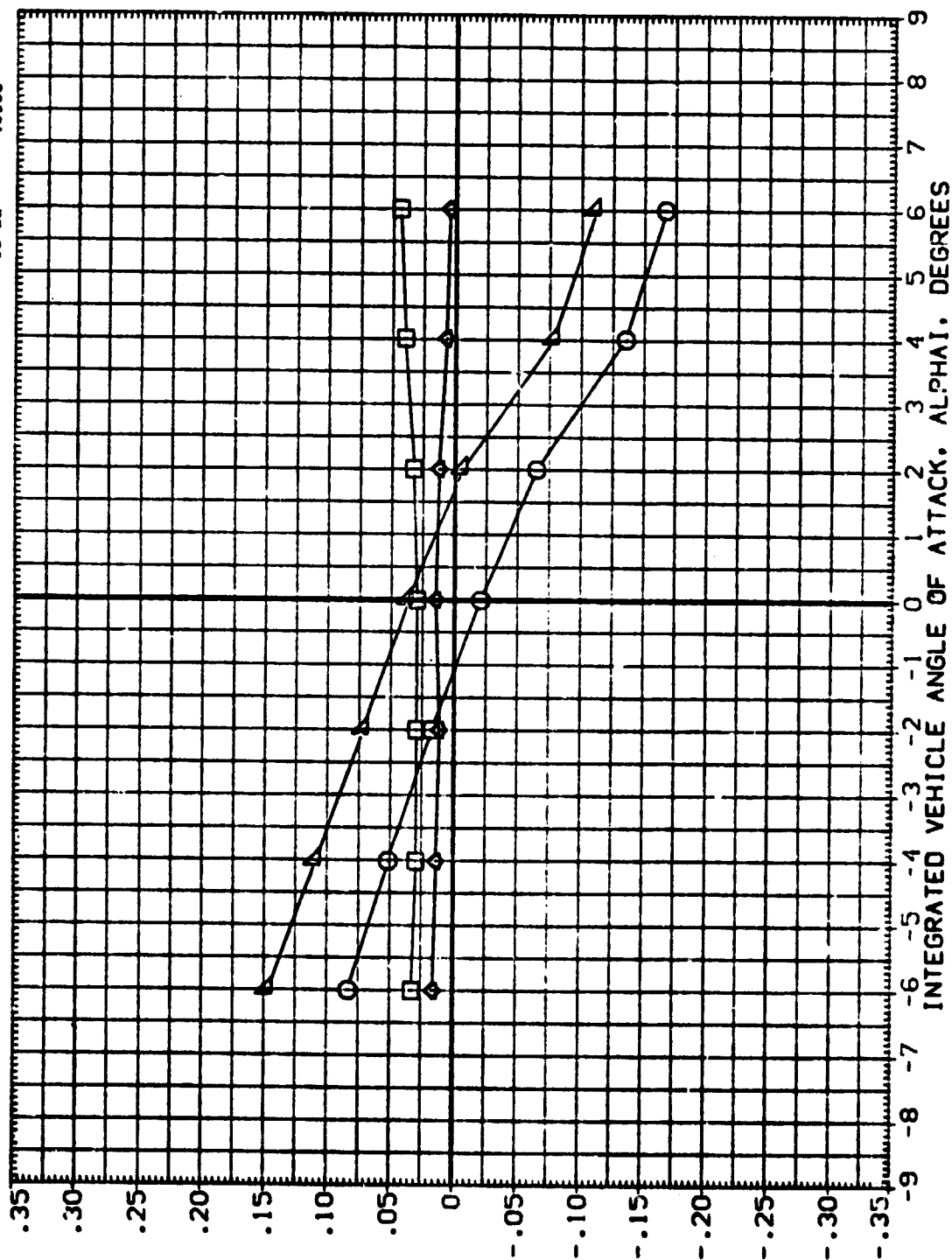


FIG. 11 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=2.0$ $DEV=10/-4$

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(NET047)	AMES97-019C(1A81) LVAP ORBITER-ALL HL SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(NET147)	AMES97-019C(1A81) LVAP TANK - ALL HL SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(NET147)	AMES97-019C(1A81) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(NET147)	AMES97-019C(1A81) LVAP R-LRB - ALL HL SEALED	10.000	-4.000	2.000	.000	XMRP 976.0000 IN. XT
(NET147)	AMES97-019C(1A81) LVAP INT VEH ALL HL SEALED	10.000	-4.000	2.000	.000	ZMRP 100.0000 IN. YT
						SCALE .0300

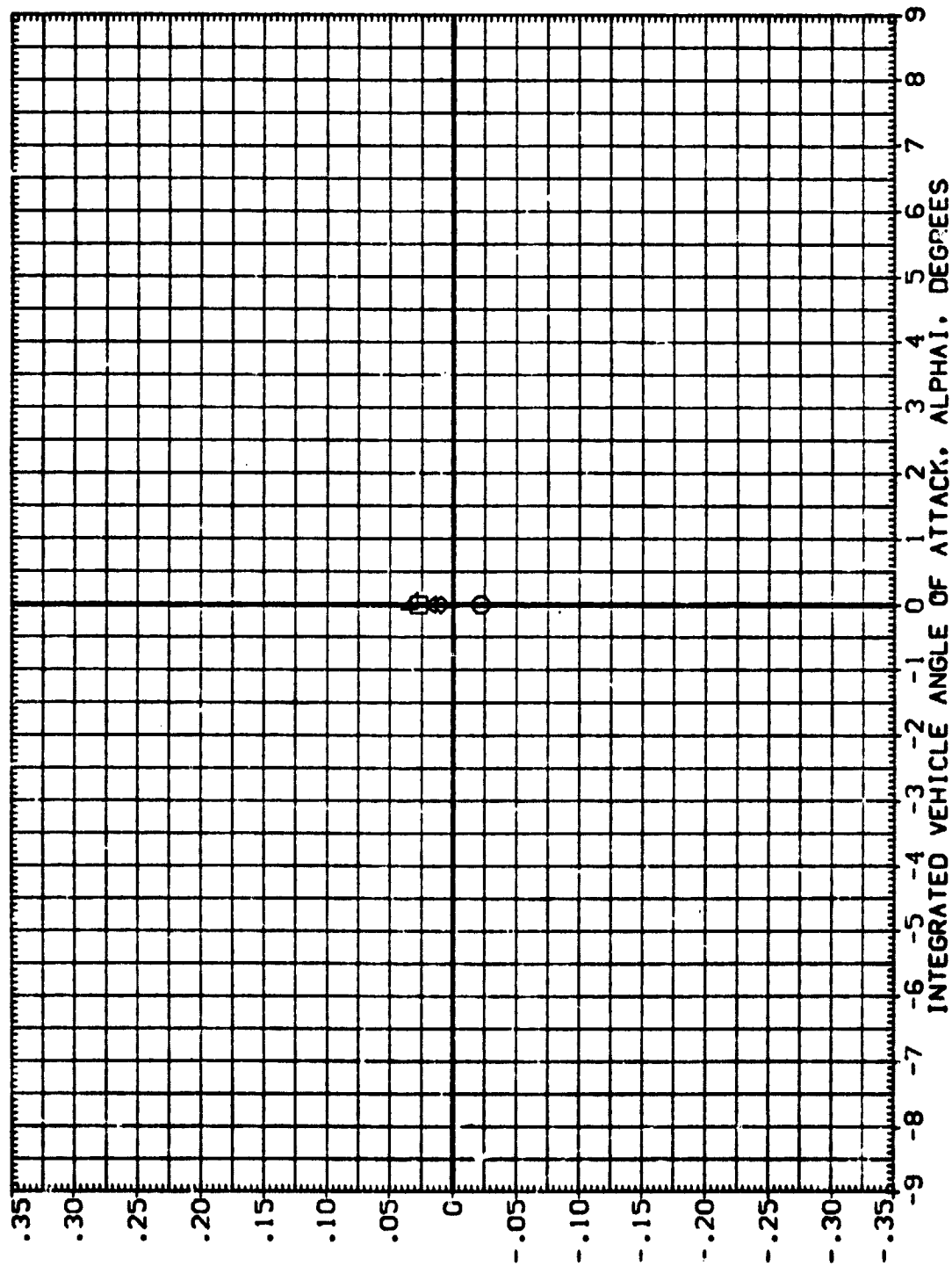


FIG. 11 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(MET047)	□	AMES97-019C(1A81) LVAP ORBITER-ALL HL SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000
(MET047)	□	AMES97-019C(1A81) LVAP TANK - ALL HL SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000
(MET047)	□	AMES97-019C(1A81) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	2.000	.000	GREF 1297.0000
(MET047)	□	AMES97-019C(1A81) LVAP R-LRB ALL HL SEALED	10.000	-4.000	2.000	.000	XMRP 976.0000
(MET047)	□	AMES97-019C(1A81) LVAP INT VEM ALL HL SEALED	10.000	-4.000	2.000	.000	YMRP 400.0000
							ZMRP .0300
							SCALE

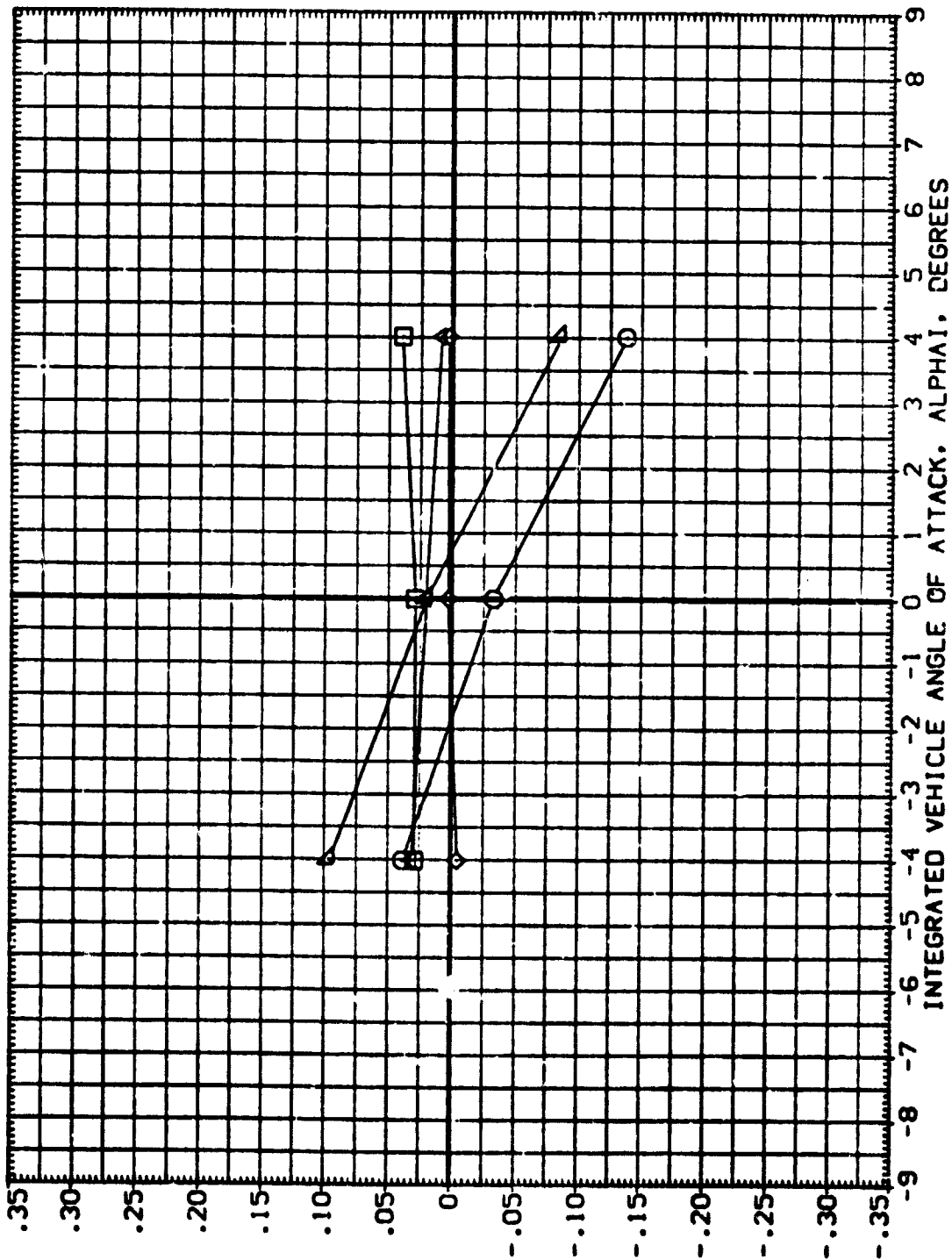


FIG. 11 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4

(F)BET.1 = 4.00

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(MET047)	□	AMES97-019C(AB1) LVAP ORBITER-ALL HL SEALED	10.000	-4.000	2.000	.000	CREF 2690.0000 SQ.FT.
(MET147)	□	AMES97-019C(AB1) LVAP TANK - ALL HL SEALED	10.000	-4.000	2.000	.000	REF 1297.0000 IN.
(MET147)	□	AMES97-019C(AB1) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(MET147)	□	AMES97-019C(AB1) LVAP R-LRB ALL HL SEALED	10.000	-4.000	2.000	.000	XMRP 976.0000 IN. XT
(MET147)	□	AMES97-019C(AB1) LVAP INT VEH ALL HL SEALED	10.000	-4.000	2.000	.000	ZMRP 400.0000 IN. YT
							SCALE .0300

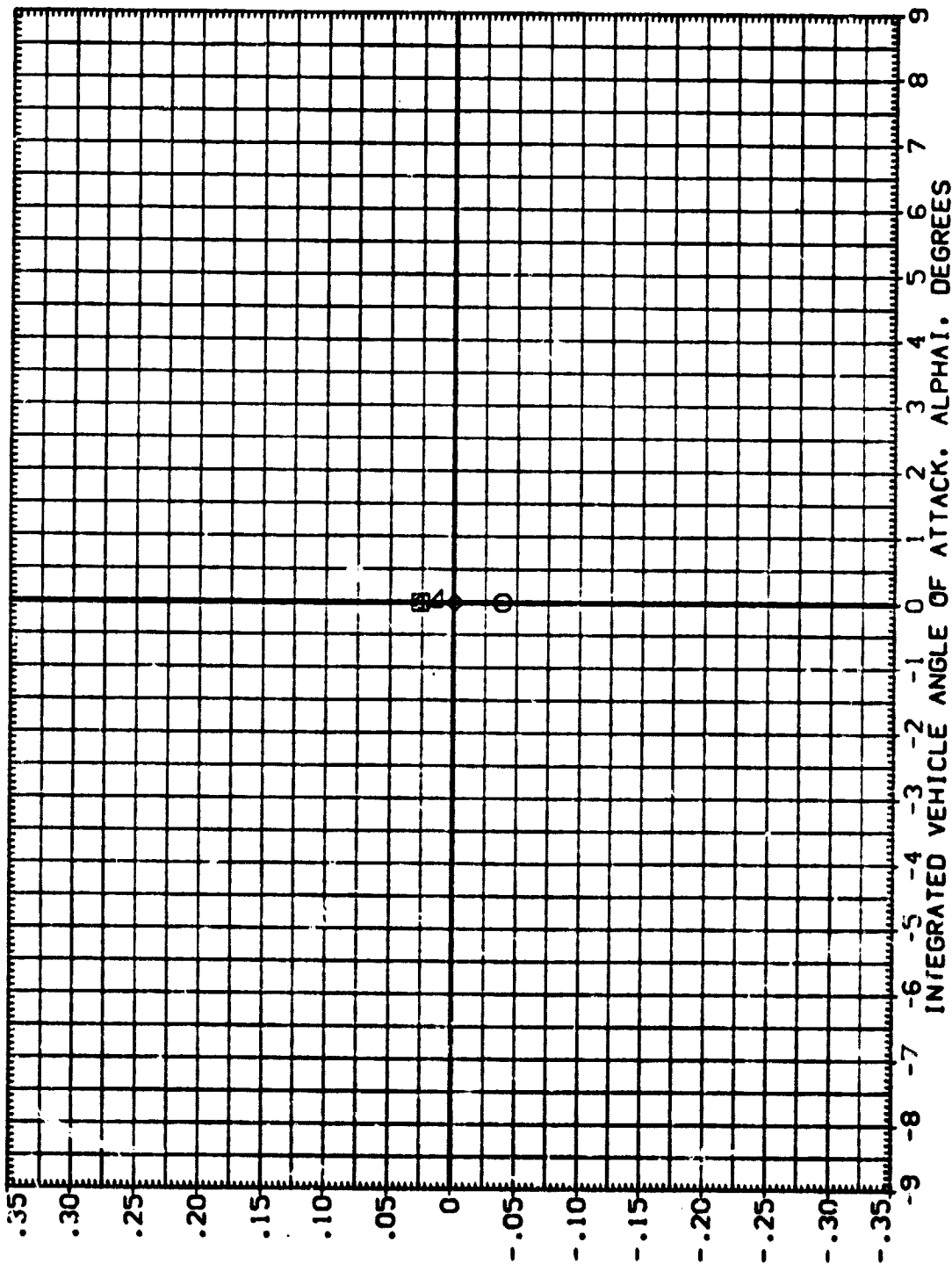


FIG. 11 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4

(G)BET.1 = 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(N17047)	AVES97-019(IAB1) LVAP ORBITER-ALL M SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(N17147)	AVES97-019(IAB1) LVAP TANK - ALL M SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(N17147)	AVES97-019(IAB1) LVAP L-SRB - ALL M SEALED	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(N17147)	AVES97-019(IAB1) LVAP R-LRB - ALL M SEALED	10.000	-4.000	2.000	.000	XPRP 976.0000 IN.
(N17147)	AVES97-019(IAB1) LVAP INT VEN - ALL M SEALED	10.000	-4.000	2.000	.000	YPRP 400.0000 IN.
(N17147)						ZPRP 400.0000 IN.
						SCALE .0300

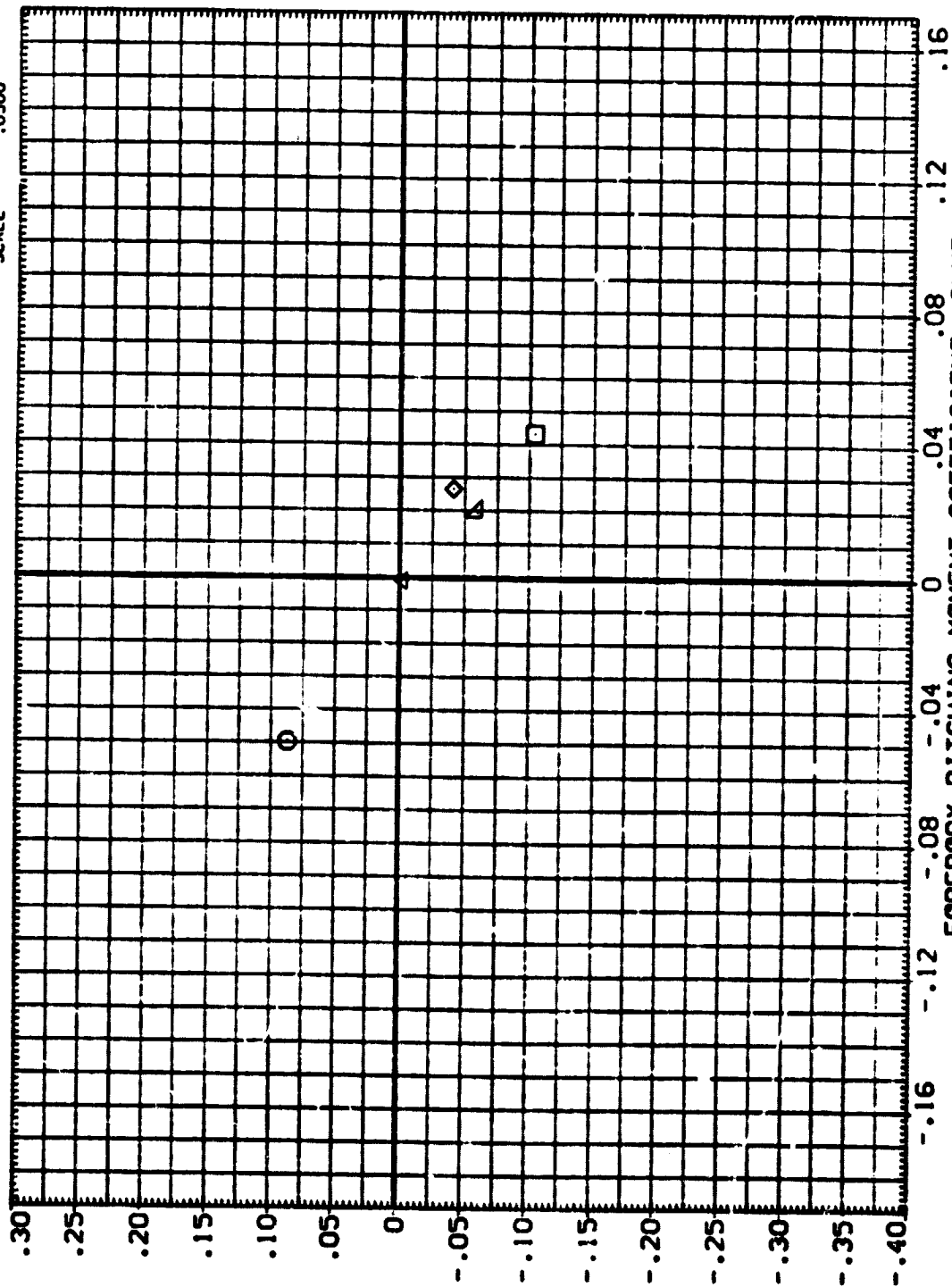


FIG. 11 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4

(A) BET. 1 = -6.00

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPORNK	REFERENCE INFORMATION	SO.FT.
(MET1047)	□	AVE597-01SC(AB1) LVAP CRB(ITER-ALL ML SEALED	10.000	-4.000	2.000	.000	SREF	2690.0000
(MET147)	○	AVE597-01SC(AB1) LVAP TANK - ALL ML SEALED	10.000	-4.000	2.000	.000	LREF	1297.0000
(MET147)	△	AVE597-01SC(AB1) LVAP L-SPB - ALL ML SEALED	10.000	-4.000	2.000	.000	BREF	1297.0000
(MET147)	◇	AVE597-01SC(AB1) LVAP R-LPB ALL ML SEALED	10.000	-4.000	2.000	.000	XTRP	576.0000
(MET147)	×	AVE597-01SC(AB1) LVAP INT VEM ALL ML SEALED	10.000	-4.000	2.000	.000	ZTRP	400.0000
							SCALE	.0300

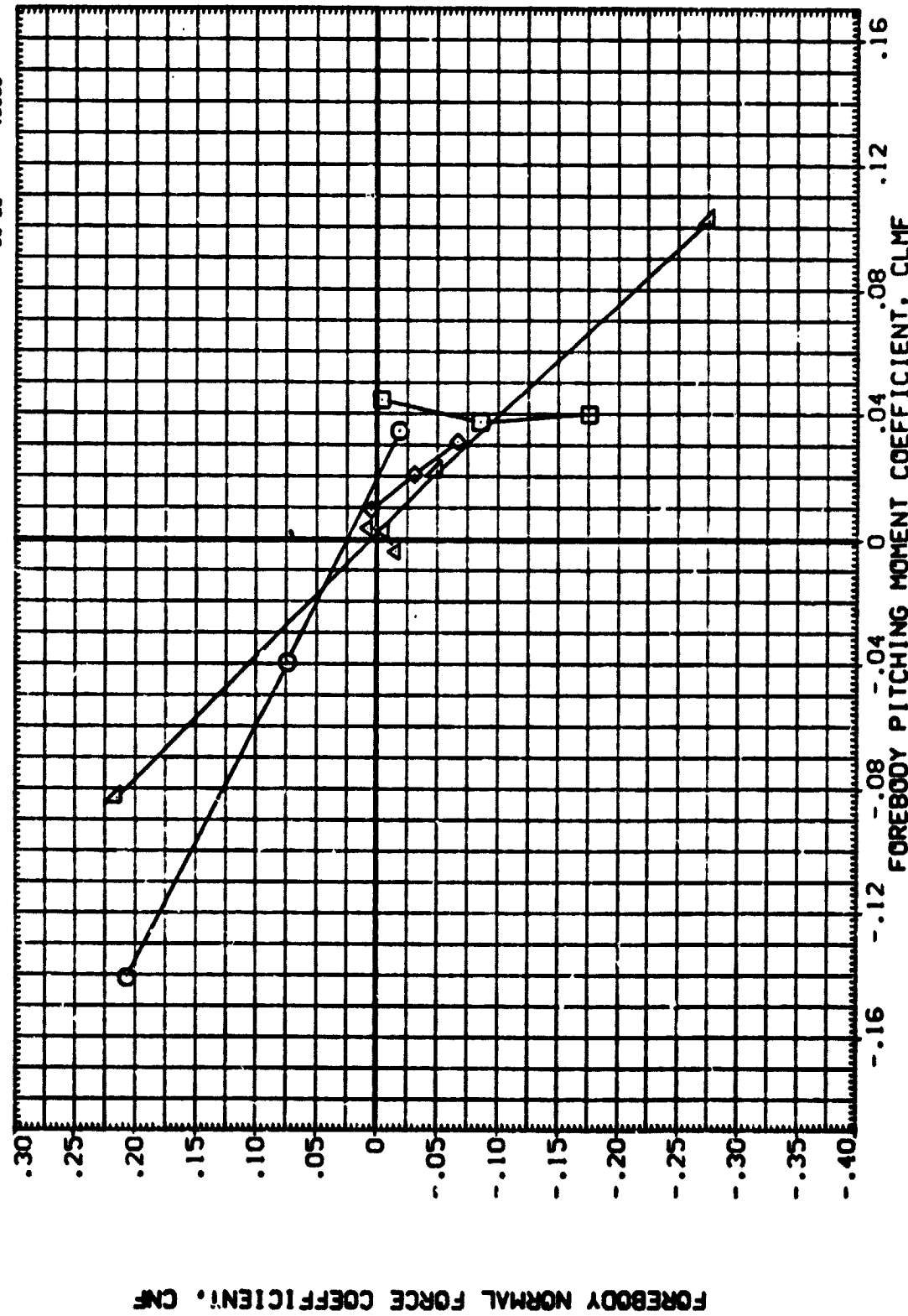


FIG. 11 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4
(B) BET. 1 = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(MET147)	AME597-019(IAB1) LVAP ORBITER-ALL H4 SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET147)	AME597-019(IAB1) LVAP TANK - ALL H4 SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(MET147)	AME597-019(IAB1) LVAP L-SRB - ALL H4 SEALED	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(MET147)	AME597-019(IAB1) LVAP R-LRB - ALL H4 SEALED	10.000	-4.000	2.000	.000	YWRP 976.0000 IN.
(MET147)	AME597-019(IAB1) LVAP INT VEH - ALL H4 SEALED	10.000	-4.000	2.000	.000	YWRP 400.0000 IN.
						ZWRP 400.0000 IN.
						SCALE .0300

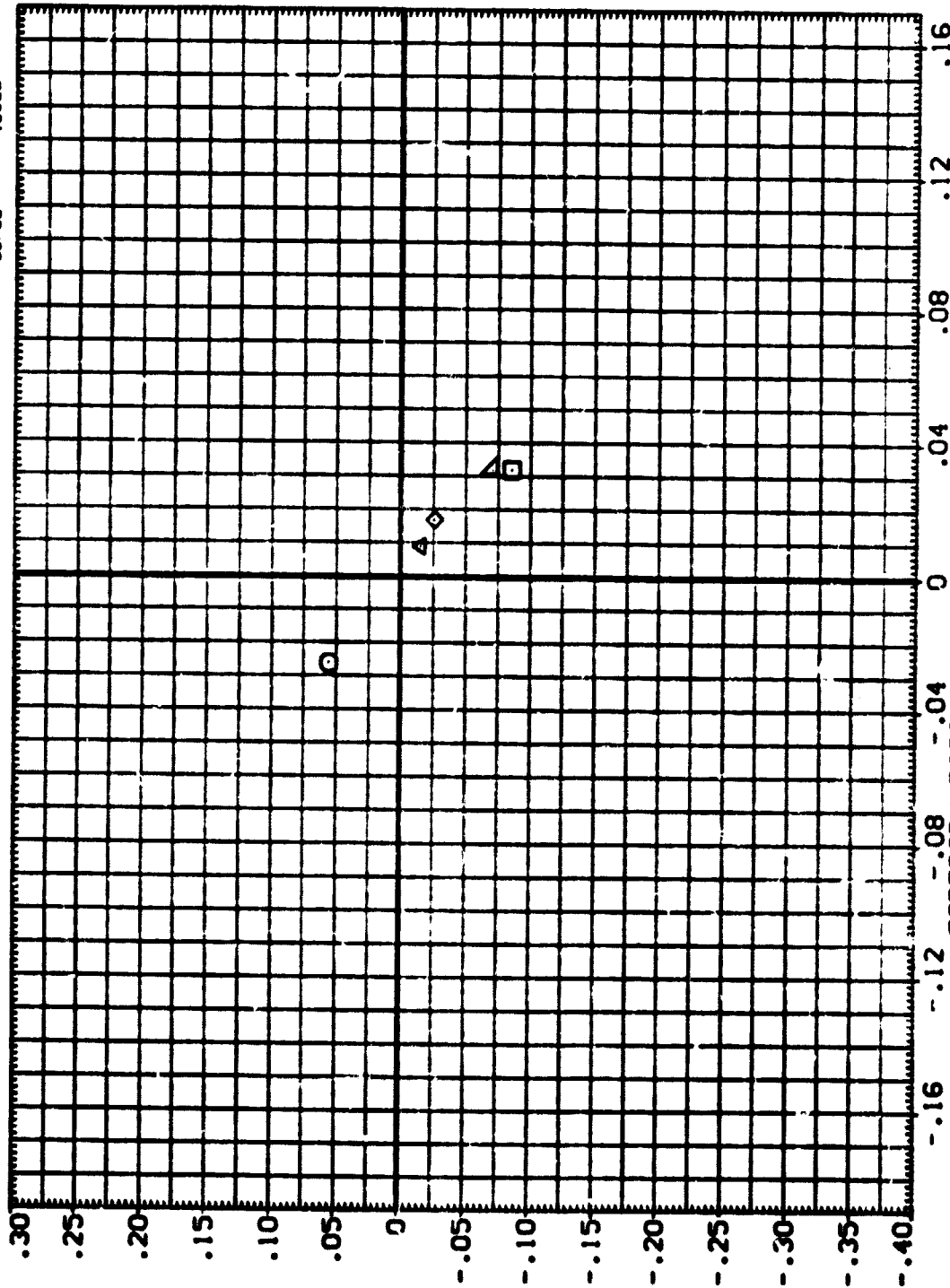


FIG. 11 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4

(C)BET.1 = -2.00

DATA SET SYMBOL CONFIGURATION DESCRIPTION

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ORBITER-ALL	ML	SEALED
(MET147)	AL597-0191(AB)	LVAP	ALL	ML SEALED
(MET147)	AL597-0191(AB)	LVAP	ALL	ML SEALED
(MET147)	AL597-0191(AB)	LVAP	ALL	ML SEALED
(MET147)	AL597-0191(AB)	LVAP	ALL	ML SEALED
(MET147)	AL597-0191(AB)	LVAP	ALL	ML SEALED
(MET147)	AL597-0191(AB)	LVAP	ALL	ML SEALED

ELV-13 ELV-08 MACH SPORK REFERENCE INFORMATION

ELV-13	ELV-08	MACH	SPORK	REF	IN.	50.FT.
10.000	-4.000	2.000	.000	SREF	2690.0000	50.0000
10.000	-4.000	2.000	.000	LREF	1297.0000	50.0000
10.000	-4.000	2.000	.000	BREF	1297.0000	50.0000
10.000	-4.000	2.000	.000	WREF	576.0000	50.0000
10.000	-4.000	2.000	.000	YREF	400.0000	50.0000
10.000	-4.000	2.000	.000	ZREF	400.0000	50.0000
10.000	-4.000	2.000	.000	SCALE	400.0000	50.0000

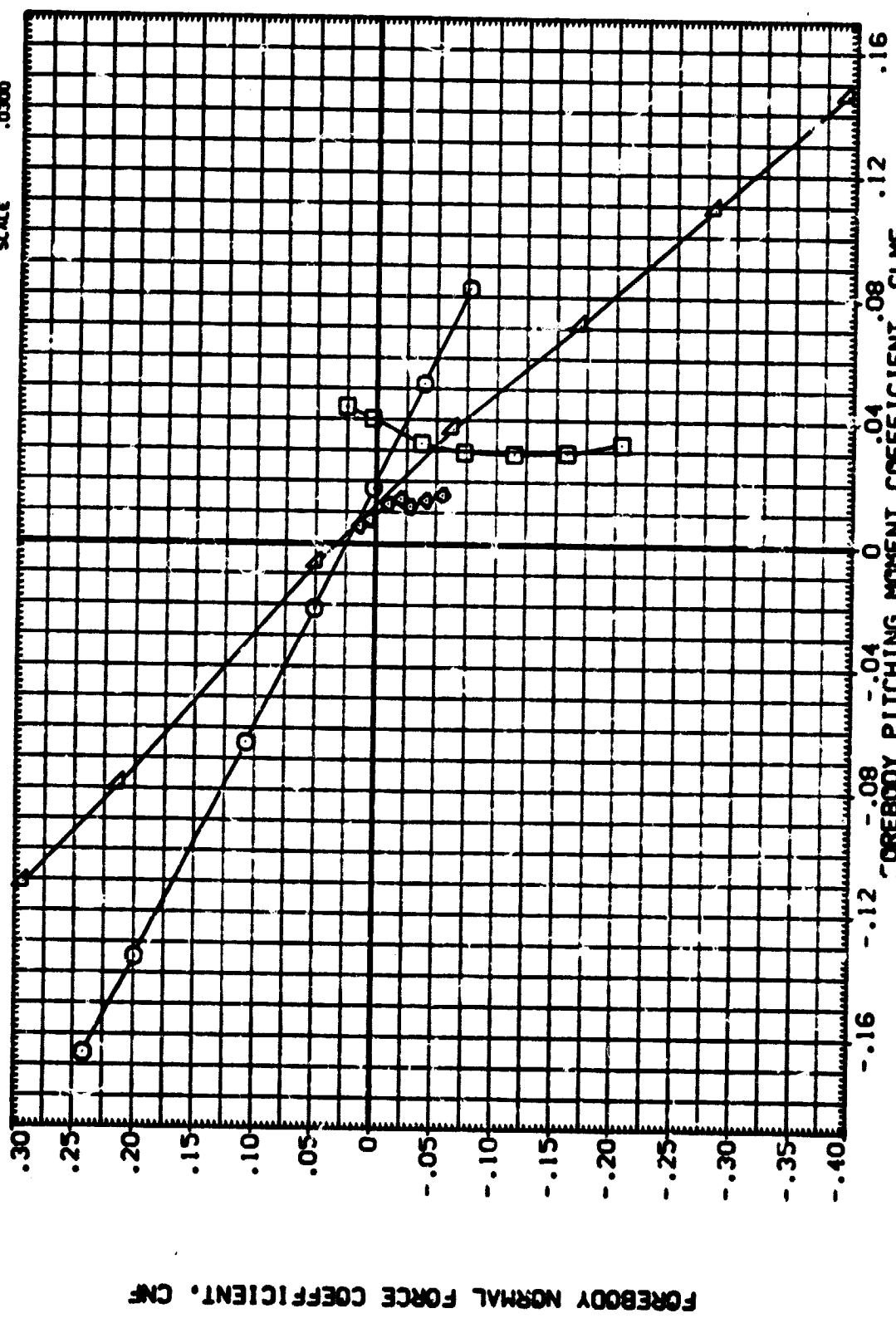


FIG. 11 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS. M=2.0 DEV=10/-4

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(MET047)	AMES97-019(IAB1) LVAP ORBITTER-ALL HL SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(MET147)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(MET147)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(MET147)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	10.000	-4.000	2.000	.000	YHRP 976.0000 IN.
(MET147)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	10.000	-4.000	2.000	.000	ZHRP 400.0000 IN.
						SCALE .0300

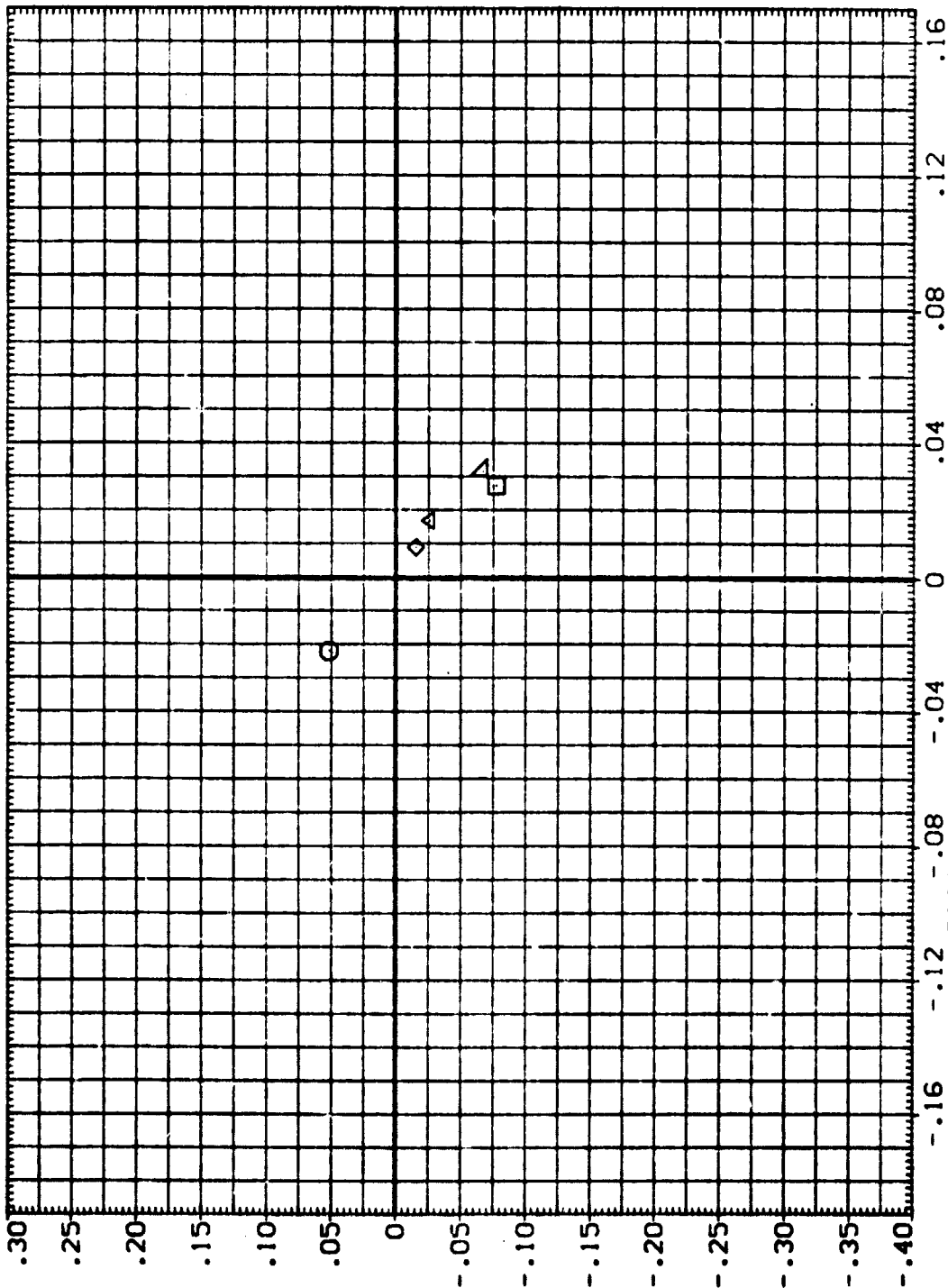


FIG. 11 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4

(E)BETA1 = 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(ME1047)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(ME1147)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(ME1147)	AMES97-019(IAB1) LVAP L-SRD - ALL HL SEALED	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(ME1147)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	10.000	-4.000	2.000	.000	XMRP 976.0000 IN. XT
(ME1147)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	10.000	-4.000	2.000	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

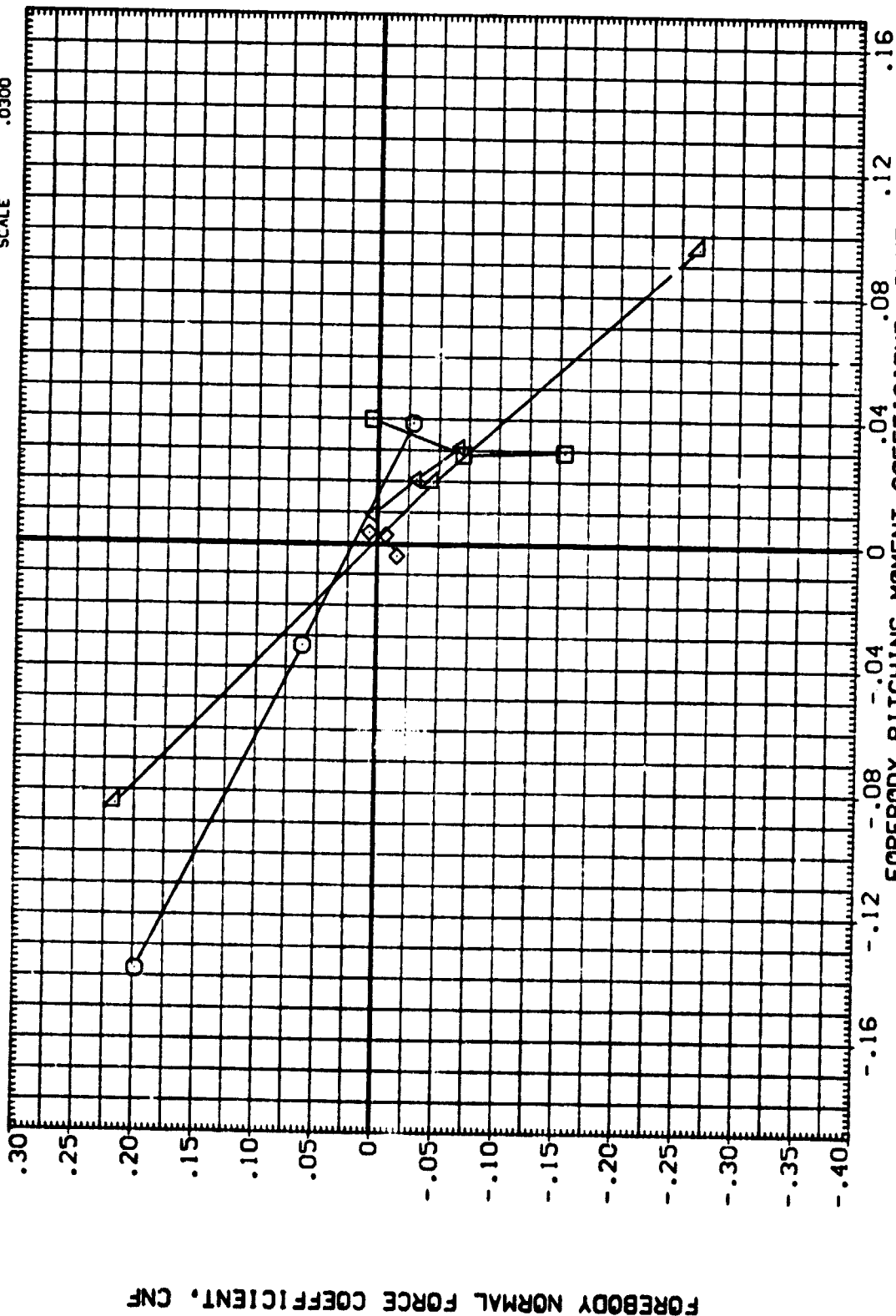


FIG. 11 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4
(F)BET.1 = 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(MET047)	AMES97-019(IAB1) LVAP ORBITER-ALL ML SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000 SO.FT.
(MET147)	AMES97-019(IAB1) LVAP TANK - ALL ML SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(MET147)	AMES97-019(IAB1) LVAP L-5RB - ALL ML SEALED	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(MET147)	AMES97-019(IAB1) LVAP R-LRB ALL ML SEALED	10.000	-4.000	2.000	.000	XMRP 976.0000 IN. XT
(MET147)	AMES97-019(IAB1) LVAP INT VEH ALL ML SEALED	10.000	-4.000	2.000	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

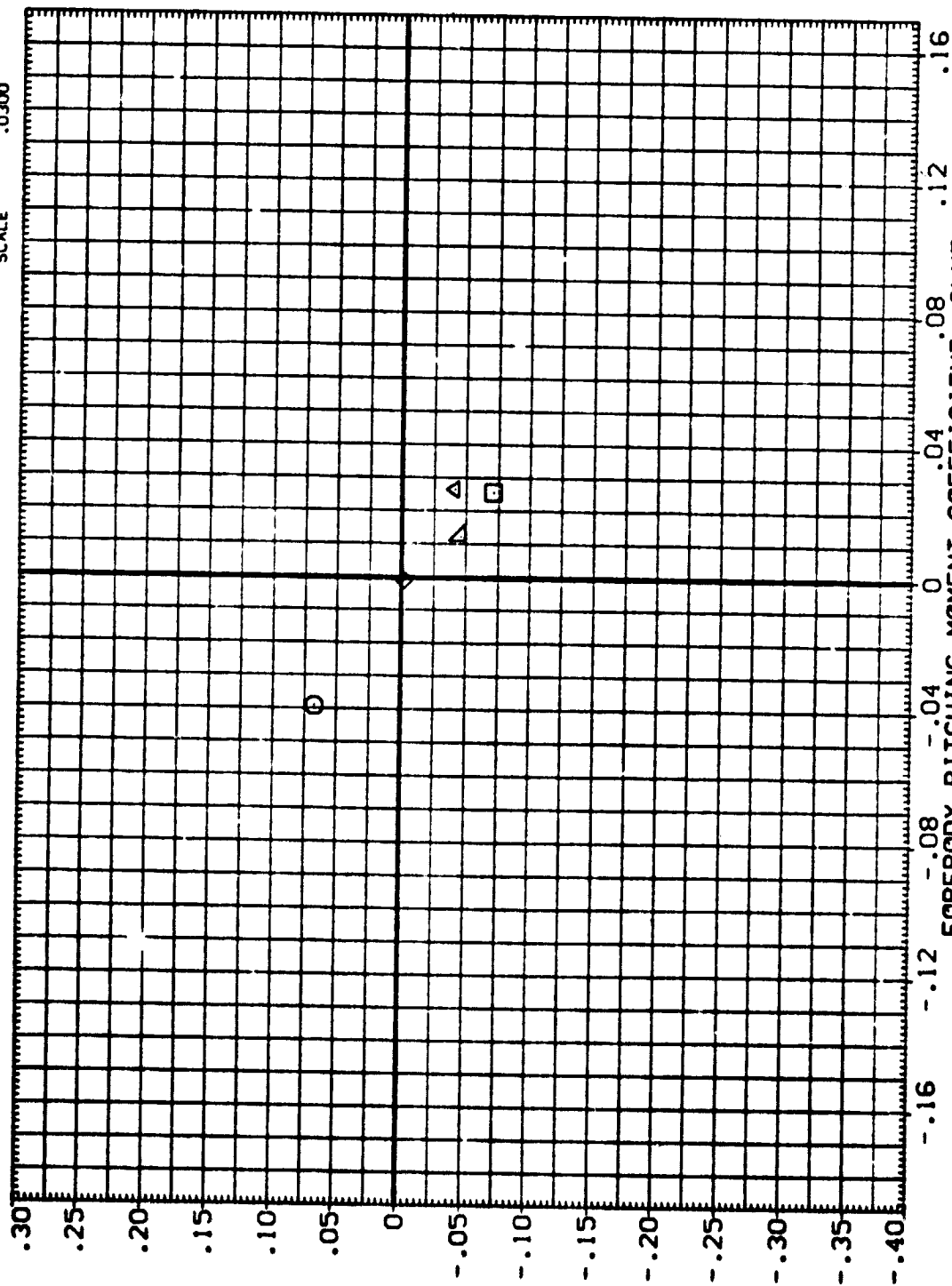


FIG. 11 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4

(G)BETA.I = 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(NET037)	ANE597-019(IAB1) LVAP ORBITER-ALL ML SEALED	8.000	-4.000	2.200	.000	SREF 2690.0000 SQ.FT.
(NET137)	ANE597-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(NETL37)	ANE597-019(IAB1) LVAP L-SRB - ALL ML SEALED	8.000	-4.000	2.200	.000	BREF 976.0000 IN.
(NETR37)	ANE597-019(IAB1) LVAP R-LRB ALL ML SEALED	8.000	-4.000	2.200	.000	XMRP .0000 IN.
(NETI37)	ANE597-019(IAB1) LVAP INT VEH ALL ML SEALED	8.000	-4.000	2.200	.000	ZMRP 400.0000 IN.
						SCALE .0300

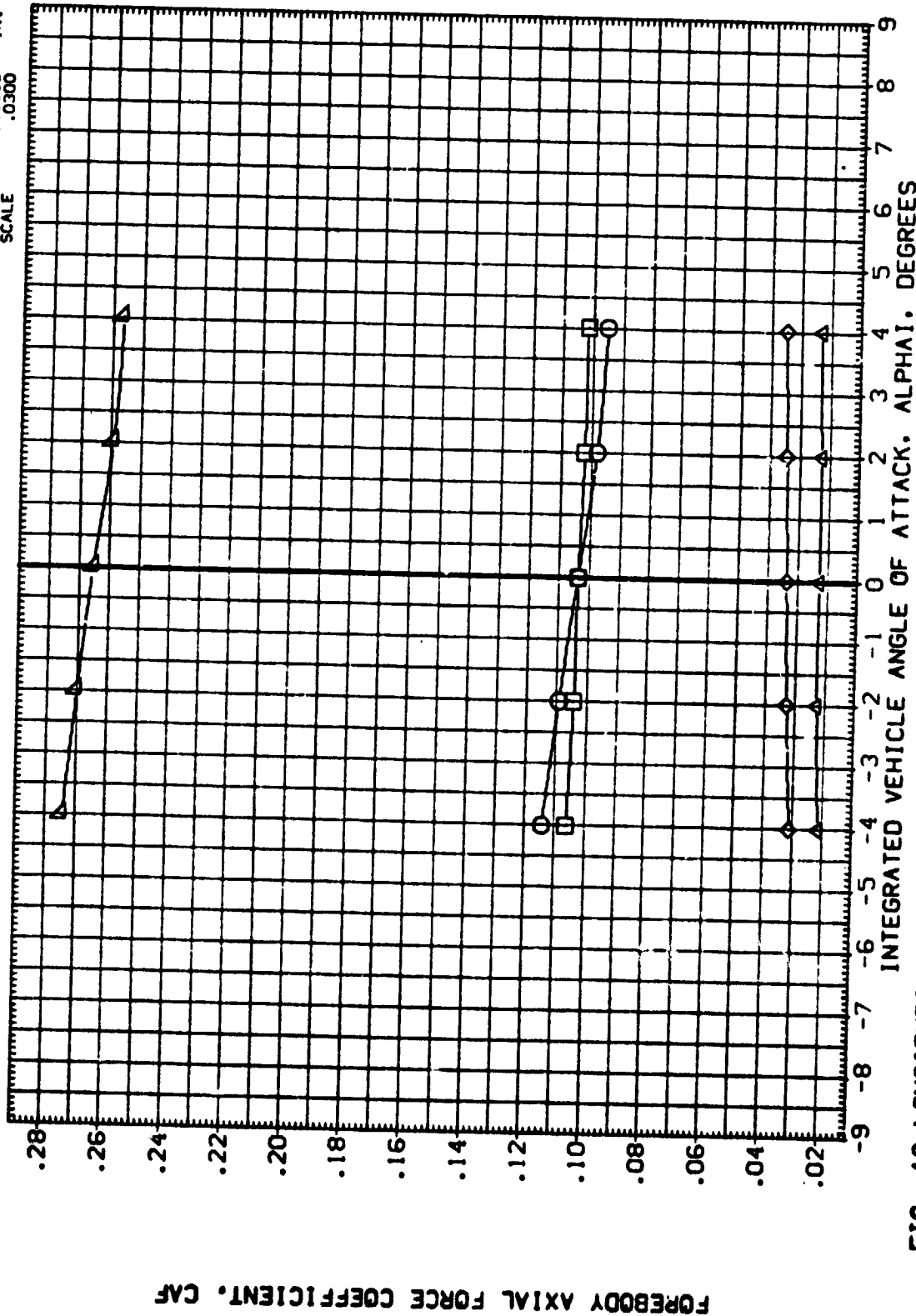


FIG. 12 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4
(A) BET. I = -6.00

DATA SET SYMBOL CONFIGURATION DESCRIPTION ELV-18 ELV-08 MACH SPDBRK REFERENCE INFORMATION

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDBRK	REFERENCE INFORMATION
(MET037)	AMES97-019(IAB1) LVAP ORBITTER-ALL ML SEALED	8.000	-4.000	2.200	.000	SREF 2690.0000 SQ.FT.
(MET137)	AMES97-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(MET137)	AMES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	8.000	-4.000	2.200	.000	BREF 976.0000 IN.
(MET137)	AMES97-019(IAB1) LVAP R-LRB - ALL ML SEALED	8.000	-4.000	2.200	.000	VMRP .0000 IN.
(MET137)	AMES97-019(IAB1) LVAP INT VEH ALL ML SEALED	8.000	-4.000	2.200	.000	VMRP .0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

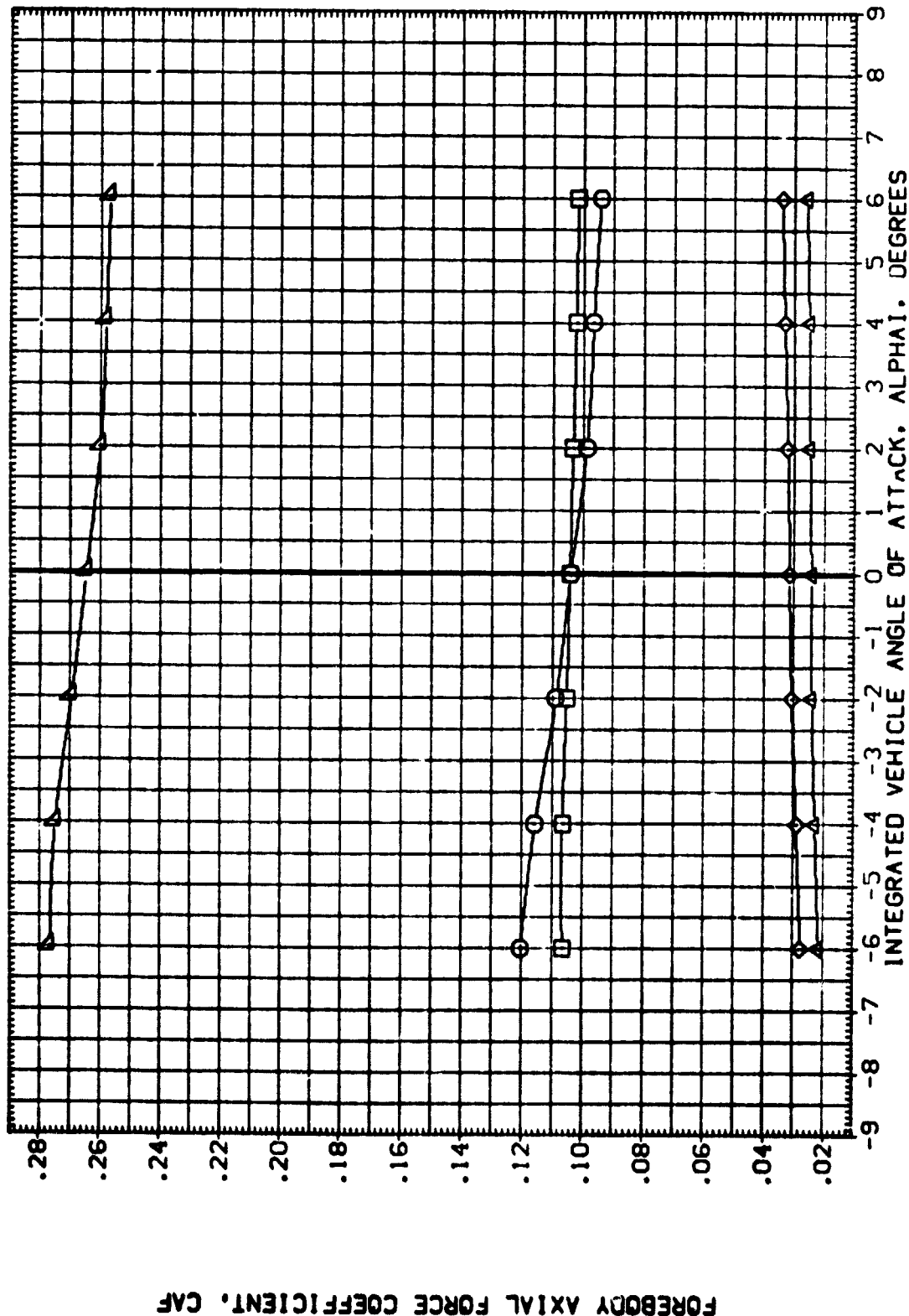


FIG. 12 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS. M=2.2 DEV=8/-4

(B)BETA1 = -4.00

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(MET037)	□	APES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.200	.000	SREF 2690.0000 SQ.FT.
(MET137)	○	APES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(METL37)	□	APES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.200	.000	BREF 1297.0000 IN.
(METR37)	△	APES97-019(IAB1) LVAP R-LRB ALL HL SEALED	8.000	-4.000	2.200	.000	XMRP 976.0000 IN. XT
(MET137)	△	APES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.200	.000	YMRP 400.0000 IN. YT
							ZMRP 400.0000 IN. ZT
							SCALE .0300

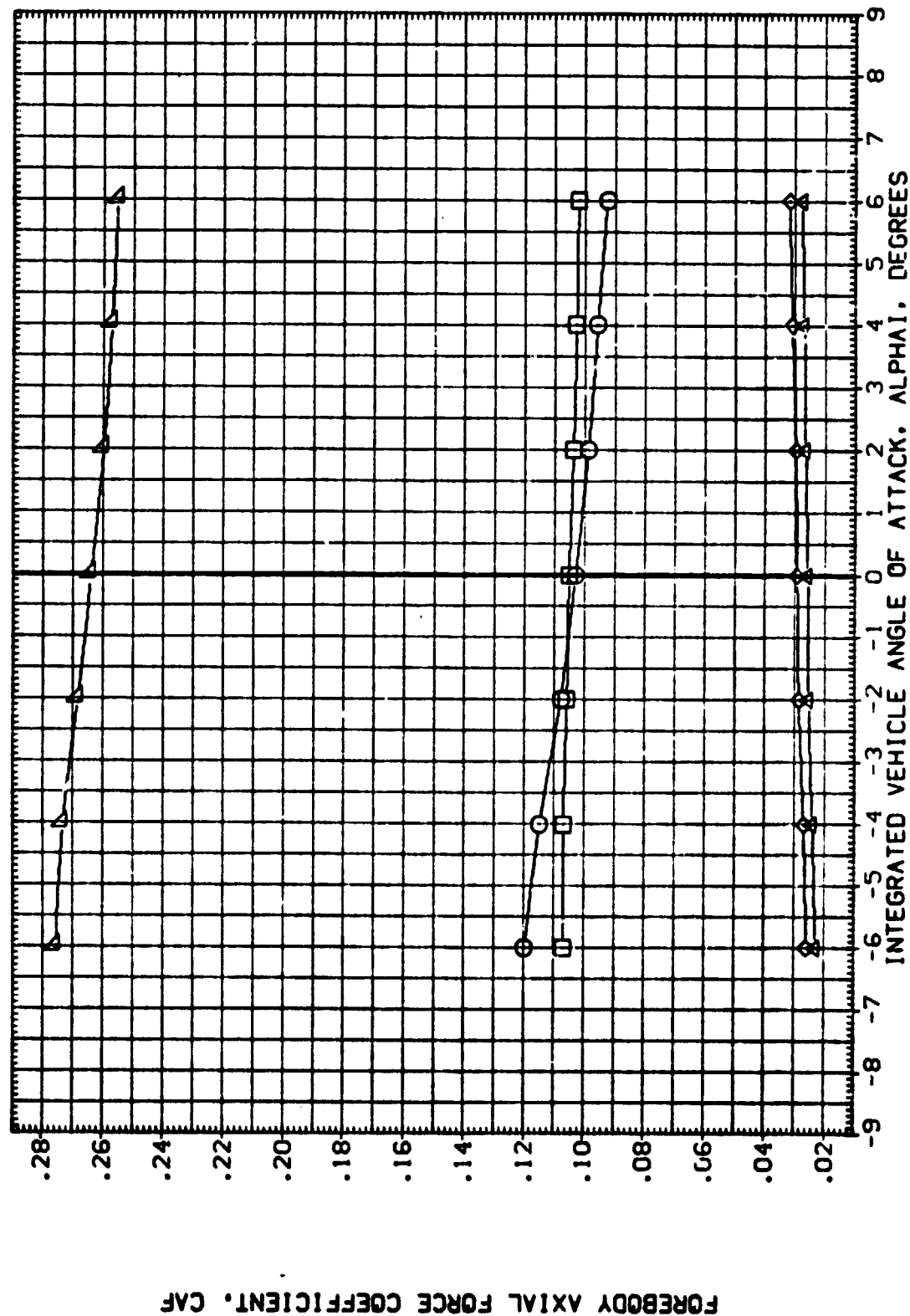


FIG. 12 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4

(C)BET.1 = -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(MET037)	AMES97-019(1A81) LVAP ORBITER-ALL ML SEALED	8.000	-4.000	2.200	.000	SREF 2690.0000 SQ.FT.
(MET137)	AMES97-019(1A81) LVAP TANK - ALL ML SEALED	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(METL37)	AMES97-019(1A81) LVAP L-SRB - ALL ML SEALED	8.000	-4.000	2.200	.000	BREF 1297.0000 IN.
(METR37)	AMES97-019(1A81) LVAP R-LRB - ALL ML SEALED	8.000	-4.000	2.200	.000	YMRP 976.0000 IN. XT
(MET137)	AMES97-019(1A81) LVAP INT VEH ALL ML SEALED	8.000	-4.000	2.200	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

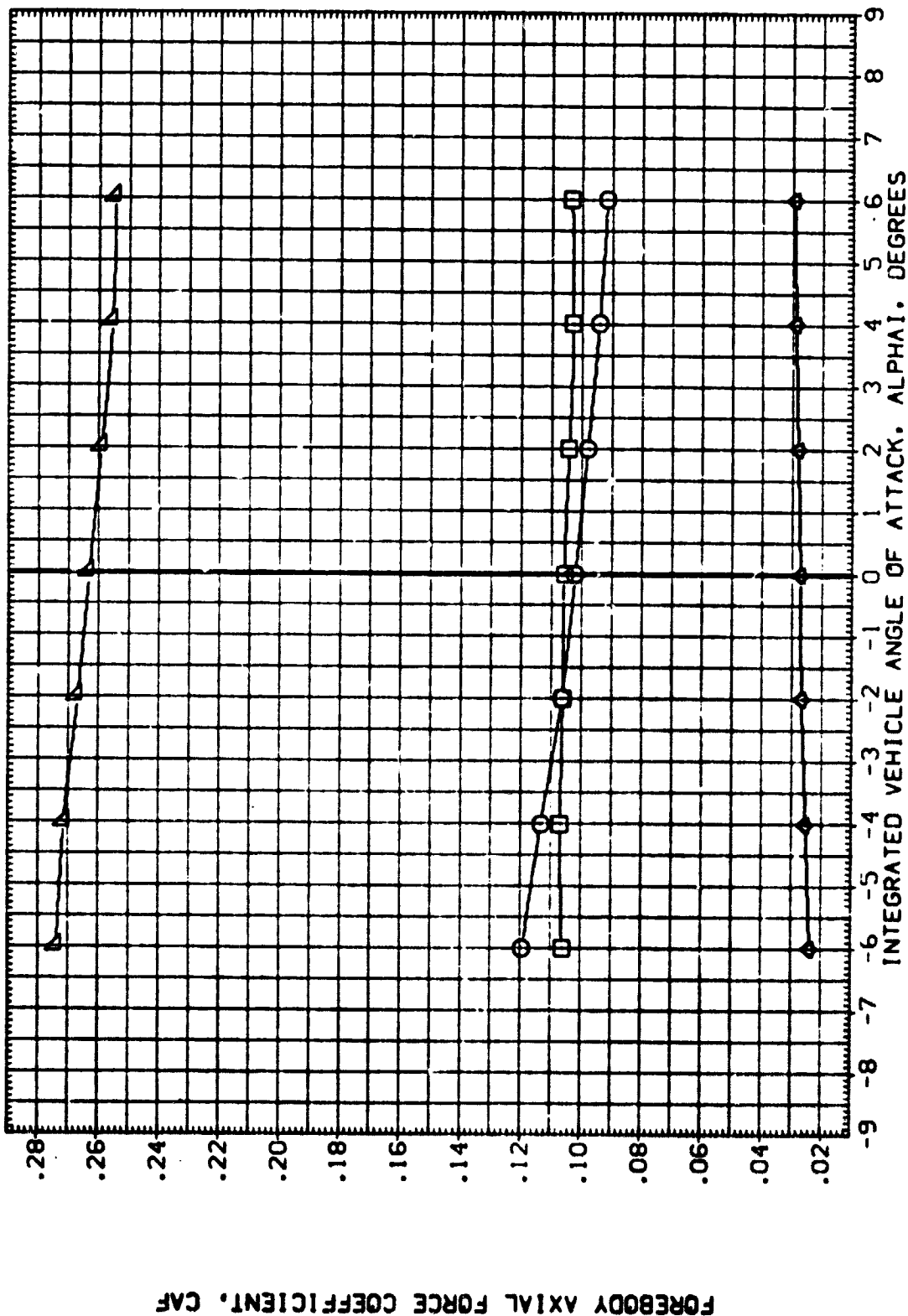


FIG. 12 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4

COBET.1 = .00

REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(MET037)	AMES97-019(IAB1) LVAP ORBITTER-ALL ML SEALED	8.000	-4.000	2.200	.000	SREF 2690.0000 SQ.FT.
(MET137)	AMES97-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(METL37)	AMES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	8.000	-4.000	2.200	.000	BREF 1297.0000 IN.
(METR37)	AMES97-019(IAB1) LVAP R-LPB ALL ML SEALED	8.000	-4.000	2.200	.000	XMRP 976.0000 IN.
(MET137)	AMES97-019(IAB1) LVAP INT VEM ALL ML SEALED	8.000	-4.000	2.200	.000	ZMRP 400.0000 IN.
						SCALE .0300

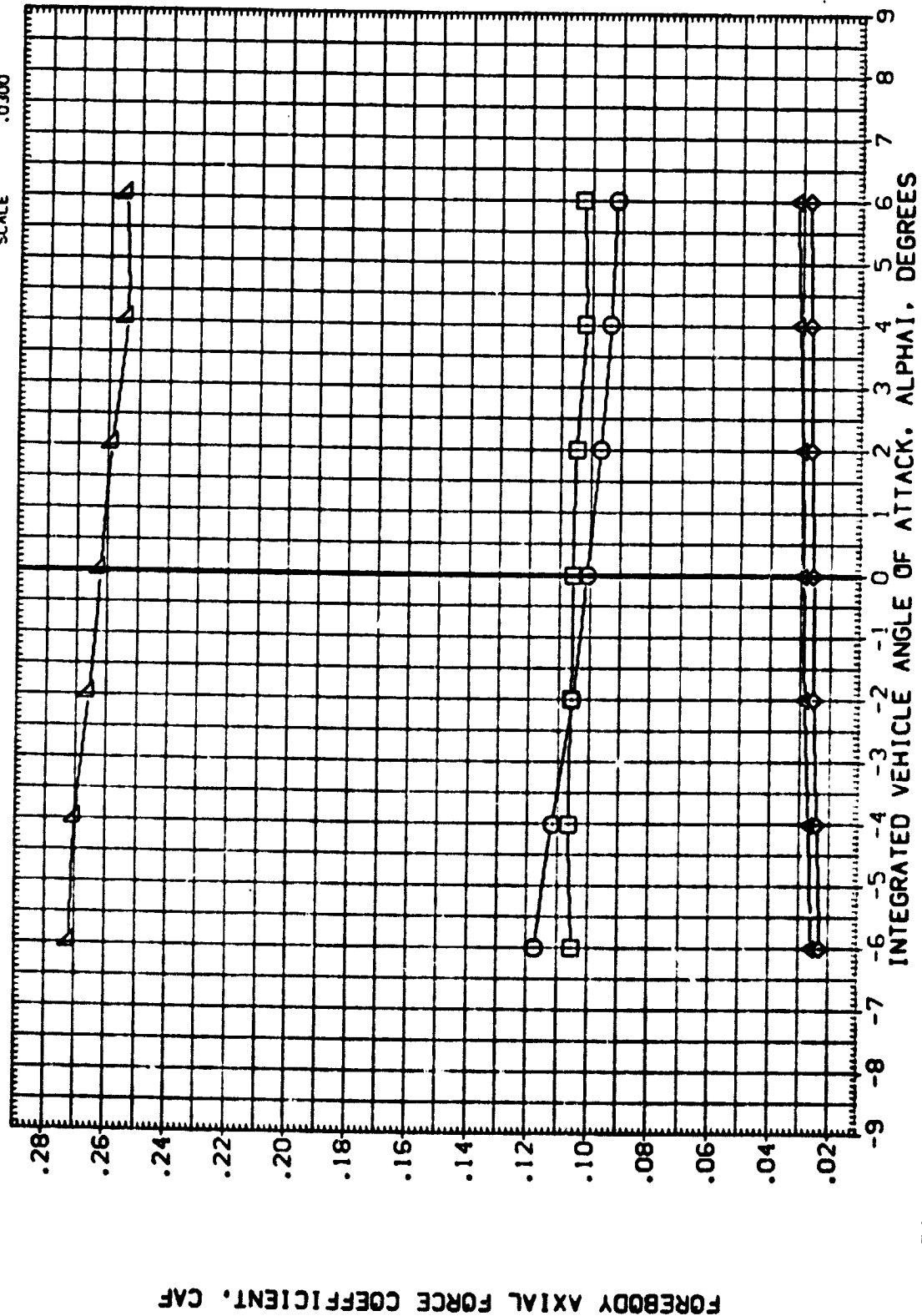


FIG. 12 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4

(E)BET.1 = 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SP08RK	REFERENCE INFORMATION
(ME1037)	AMES97-019(1A81) LVAP ORBITER-ALL ML SEALED	8.000	-4.000	2.200	.000	SREF 2690.0000 SQ.FT.
(ME1137)	AMES97-019(1A81) LVAP TANK - ALL ML SEALED	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(ME1237)	AMES97-019(1A81) LVAP L-SRB - ALL ML SEALED	8.000	-4.000	2.200	.000	SREF 1297.0000 IN.
(ME1337)	AMES97-019(1A81) LVAP R-LRB - ALL ML SEALED	8.000	-4.000	2.200	.000	XREF 976.0000 IN.
(ME1437)	AMES97-019(1A81) LVAP INT VEH ALL ML SEALED	8.000	-4.000	2.200	.000	YREF 400.0000 IN.
						SCALE .0300

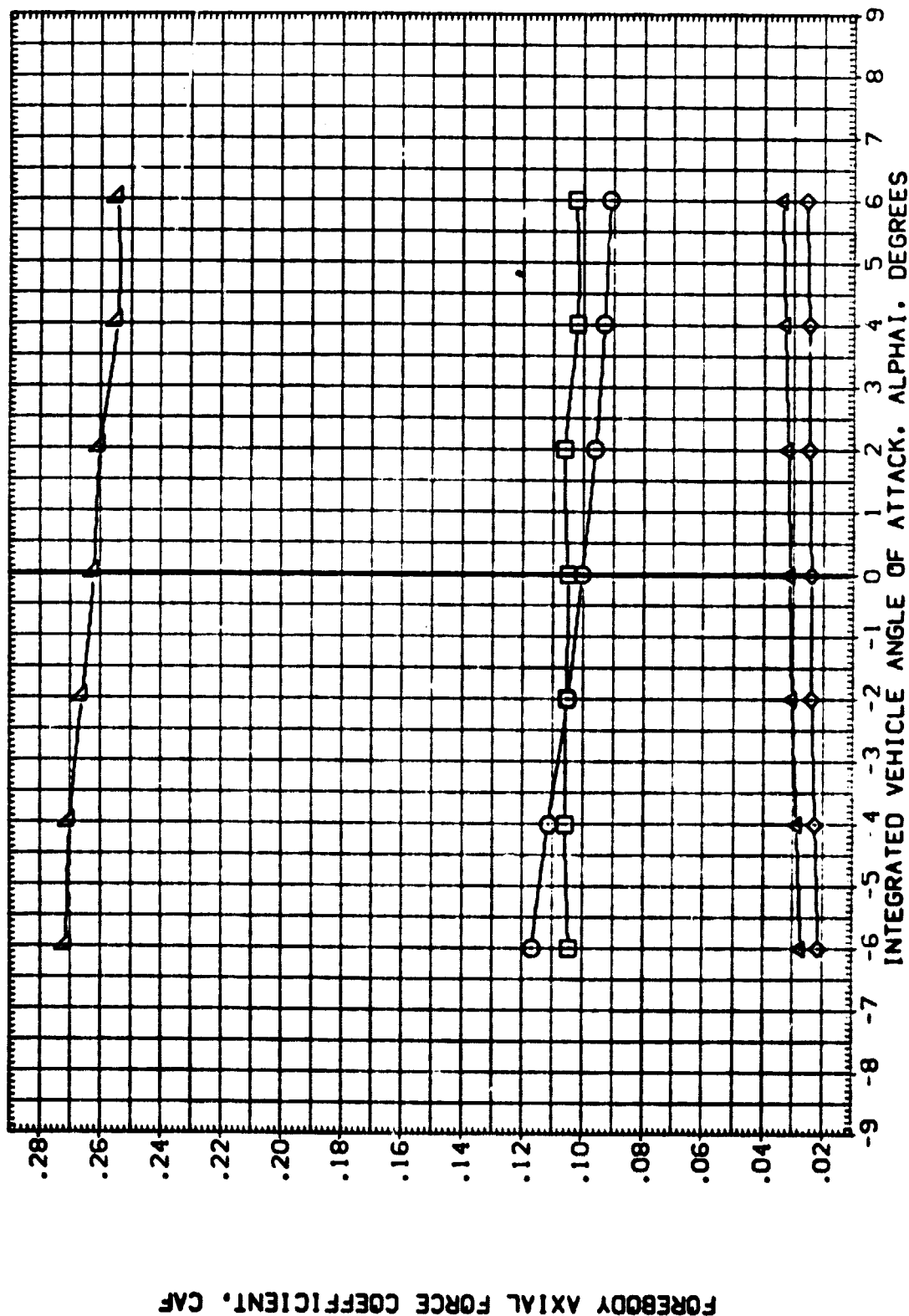


FIG. 12 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4

(F)BET.1 = 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(NET037)	AMES97-019(1A81) LVAP ORBITER-ALL ML SEALED	8.000	-4.000	2.200	.000	SREF 2630.0000 SQ.FT.
(NET137)	AMES97-019(1A81) LVAP TANK - ALL ML SEALED	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(NETL37)	AMES97-019(1A81) LVAP L-SRB - ALL ML SEALED	8.000	-4.000	2.200	.000	BREF 1297.0000 IN.
(NETR37)	AMES97-019(1A81) LVAP R-LRB - ALL ML SEALED	8.000	-4.000	2.200	.000	YHRP 976.0000 IN.
(NETI37)	AMES97-019(1A81) LVAP INT VEM ALL ML SEALED	8.000	-4.000	2.200	.000	ZHRP 400.0000 IN.
						SCALE .0300

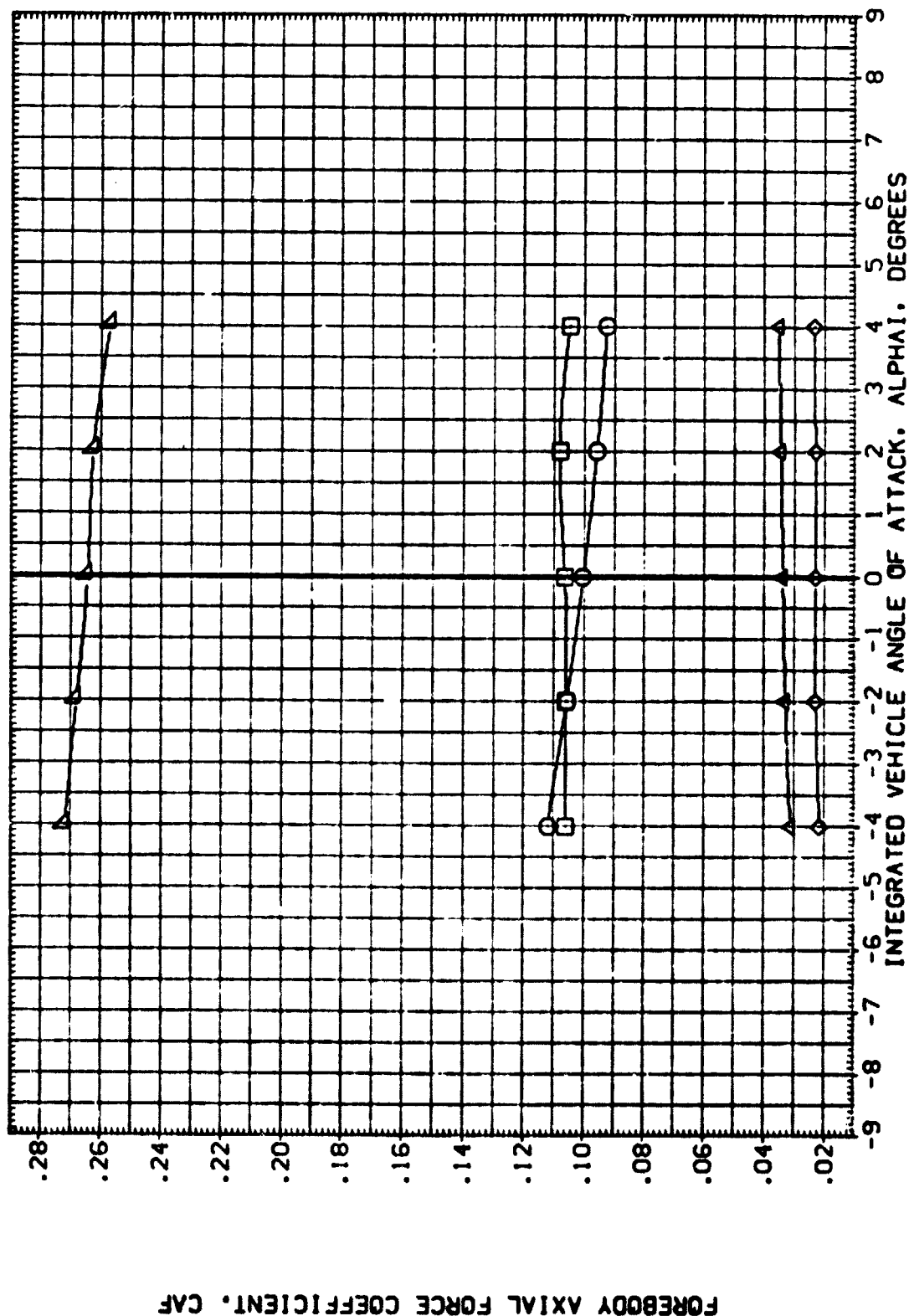


FIG. 12 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4

(G)BET 11 = 6.00

DATA SET SYMBOL CONFIGURATION DESCRIPTION

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(MET037)	AMES97-019(IAB1) LVAP ORBITTER-ALL M SEALED	8.000	-4.000	2.200	.000	SREF 2690.0000 SQ.FT.
(MET137)	AMES97-019(IAB1) LVAP TANK - ALL M SEALED	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(METL37)	AMES97-019(IAB1) LVAP L-SRB - ALL M SEALED	8.000	-4.000	2.200	.000	BREF 1297.0000 IN.
(METR37)	AMES97-019(IAB1) LVAP R-LRB ALL M SEALED	8.000	-4.000	2.200	.000	XHREF 976.0000 IN.
(MET137)	AMES97-019(IAB1) LVAP INT VEH ALL M SEALED	8.000	-4.000	2.200	.000	YHREF 400.0000 IN.
						ZHREF 400.0000 IN.
						SCALE .0300

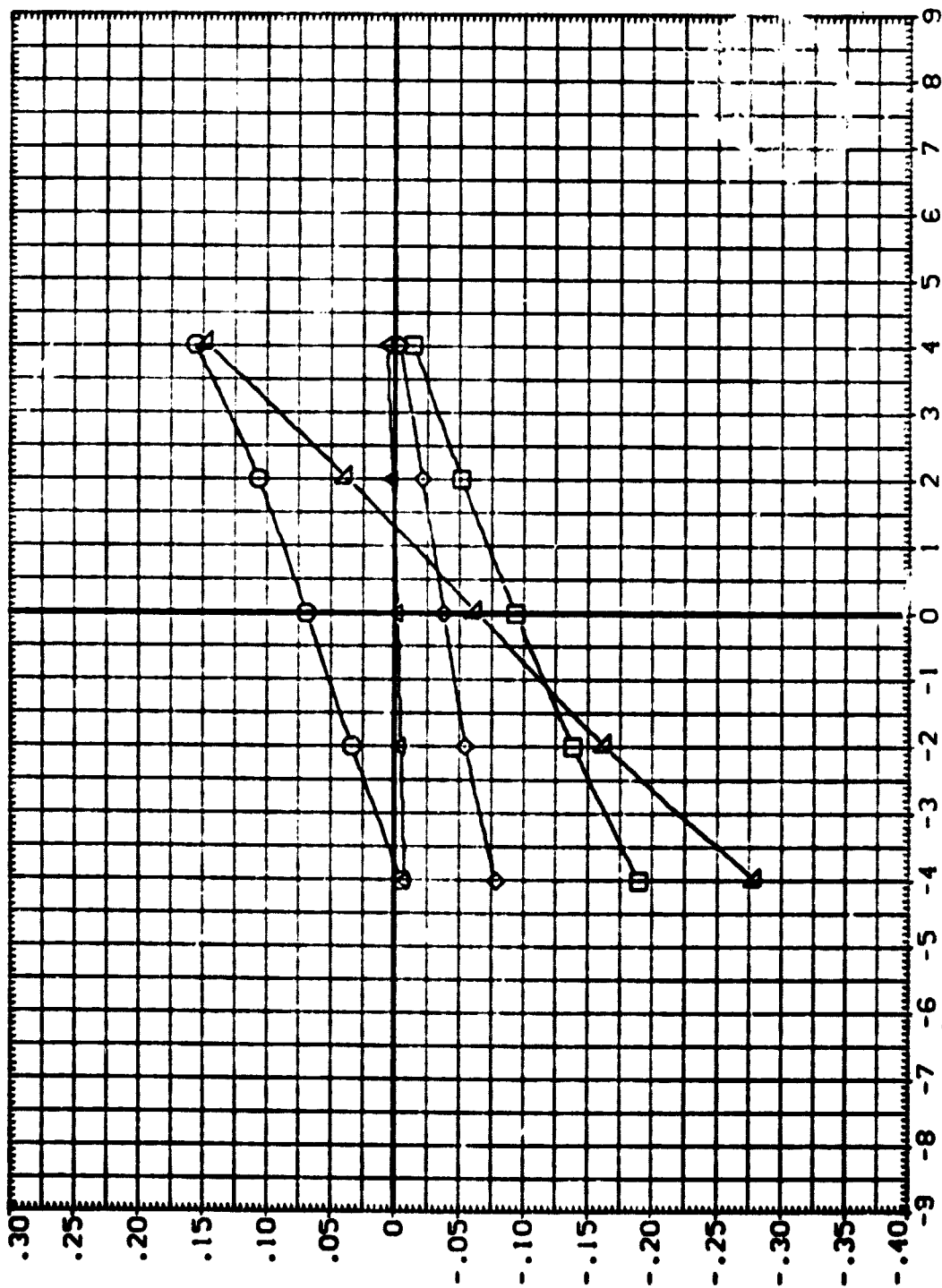


FIG. 12 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4

(A)BET.1 = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-08	MACH	SPDRBK	REFERENCE INFORMATION
(NET037)	AME597-019(IAB1) LVAP ORBITER-ALL WL SEALED	8.000	-4.000	2.200	.000	SREF 2690.0000 SQ. FT.
(NET137)	AME597-019(IAB1) LVAP TANK - ALL WL SEALED	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(NETL37)	AME597-019(IAB1) LVAP L-SRB - ALL WL SEALED	8.000	-4.000	2.200	.000	BREF 1297.0000 IN.
(NETR37)	AME597-019(IAB1) LVAP R-LRB - ALL WL SEALED	8.000	-4.000	2.200	.000	YRFP 976.0000 IN. XT
(NETI37)	AME597-019(IAB1) LVAP INT VEW ALL WL SEALED	8.000	-4.000	2.200	.000	YRFP 400.0000 IN. YT
						SCALE .0300

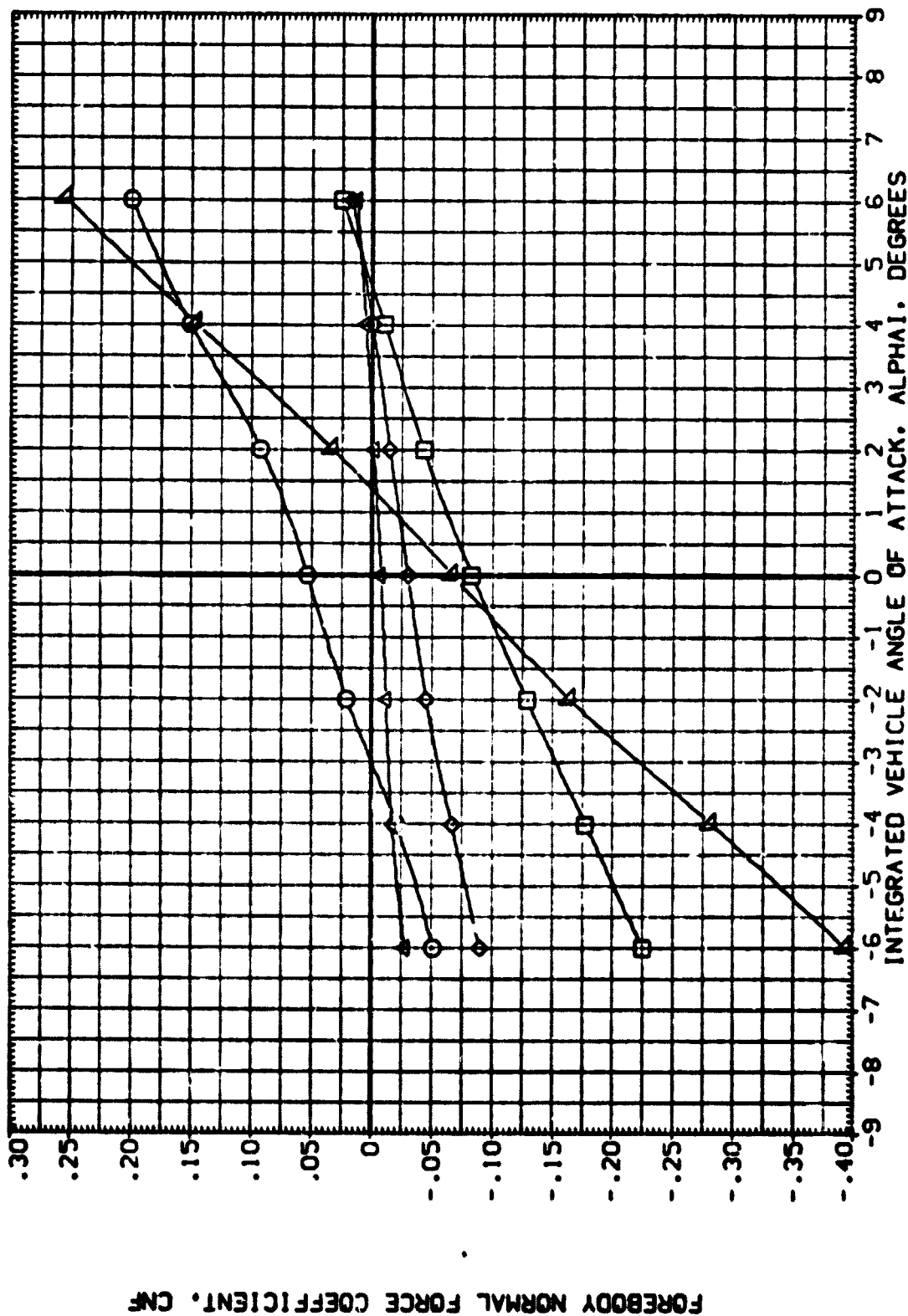


FIG. 12 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=2.2$ $DEV=8/-4$

(B)BET.1 = -4.00

DATA SET SYMBOL CONFIGURATION DESCRIPTION ELV-18 ELV-08 MACH SPD8RK REFERENCE INFORMATION

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPD8RK	REFERENCE INFORMATION
(MET137)	ANE537-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.200	.000	SREF 2690.0000 SQ.FT.
(MET137)	ANE537-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(MET137)	ANE537-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.200	.000	BREF 1297.0000 IN.
(MET137)	ANE537-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.200	.000	YMRP 976.0000 IN. XT
(MET137)	ANE537-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.200	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

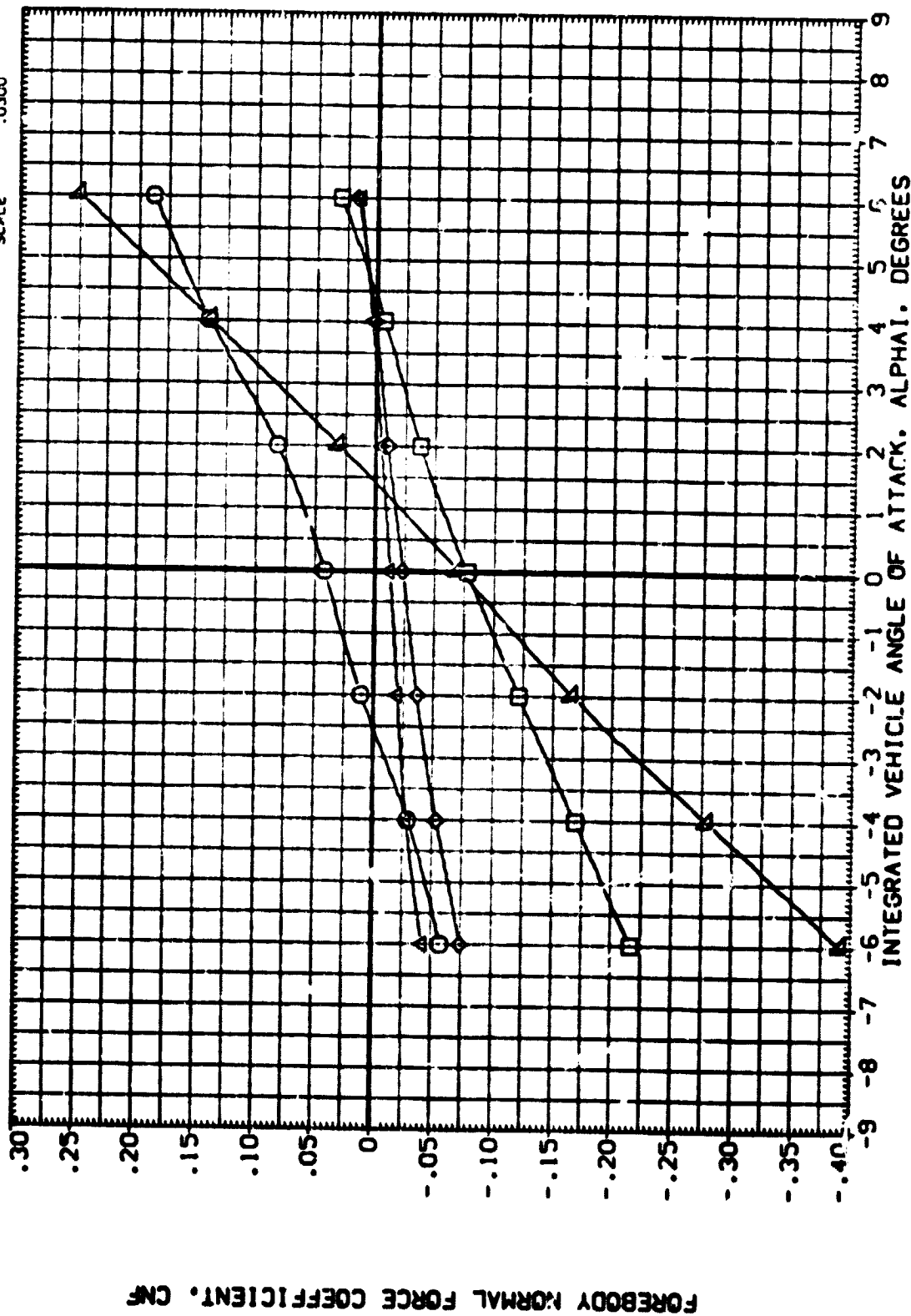


FIG. 12 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4

(C)BET.1 = -2.00

DATA SET SYMBOL CONFIGURATION DESCRIPTION ELV-IB ELV-OB MACH SPDBRK REFERENCE INFORMATION

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDBRK	REFERENCE INFORMATION
(MET137)	AMES97-019(IAB1) LVAP ORBITER-ALL ML SEALED	8.000	-4.000	2.200	.000	SREF 2690.0000 SQ.FT.
(MET137)	AMES97-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(MET137)	AMES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	8.000	-4.000	2.200	.000	BREF 976.0000 IN.
(MET137)	AMES97-019(IAB1) LVAP R-LRB - ALL ML SEALED	8.000	-4.000	2.200	.000	YMRP .0000 IN.
(MET137)	AMES97-019(IAB1) LVAP INT VEH ALL ML SEALED	8.000	-4.000	2.200	.000	ZMRP .0000 IN.
						SCALE .0300

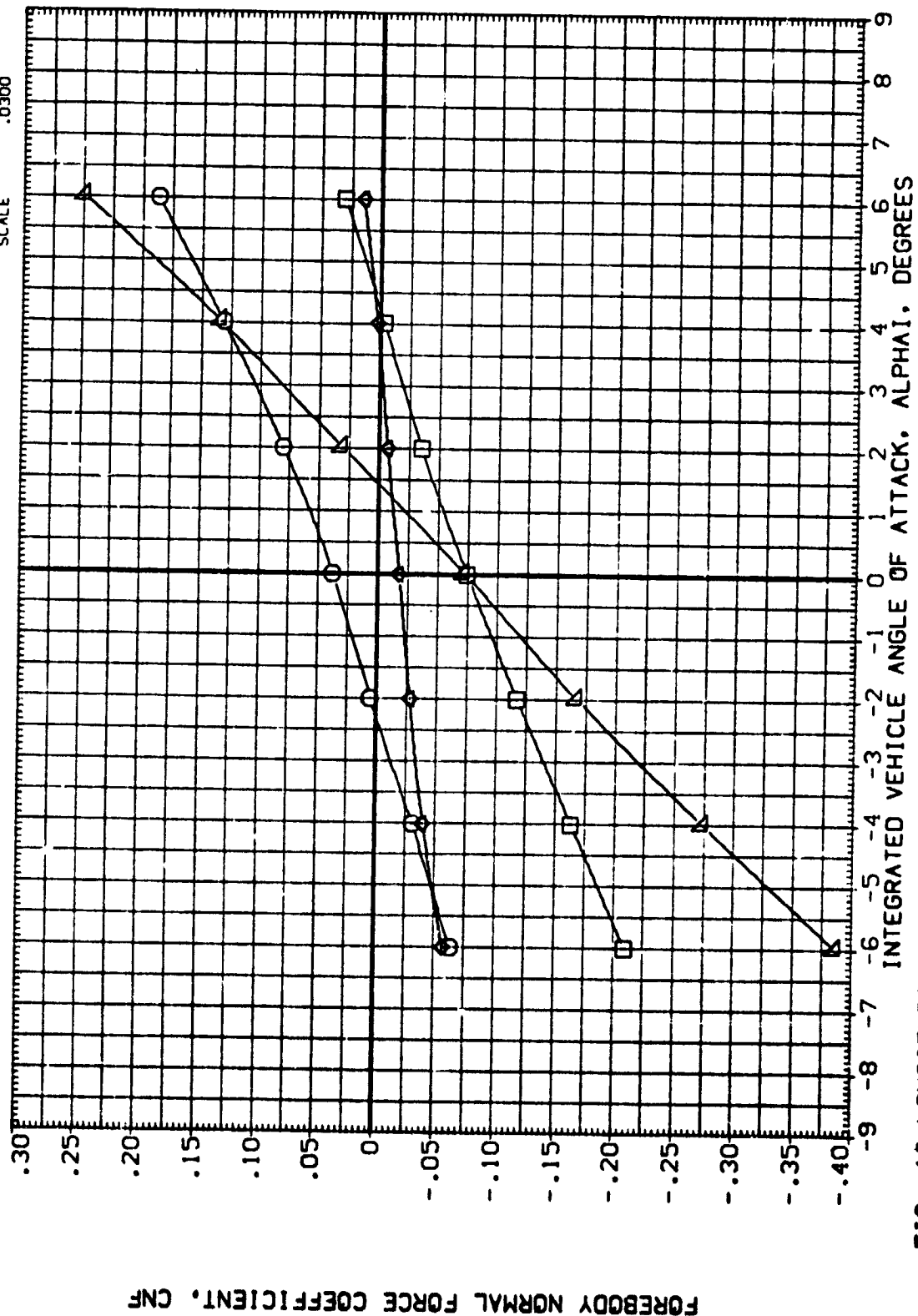


FIG. 12 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4
(O)BET.1 = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(MET037)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.200	.000	SREF 2690.0000 SO.FT.
(MET137)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(MET137)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.200	.000	BREF 1297.0000 IN.
(MET137)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.200	.000	YMRP 976.0000 IN. XT
(MET137)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.200	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

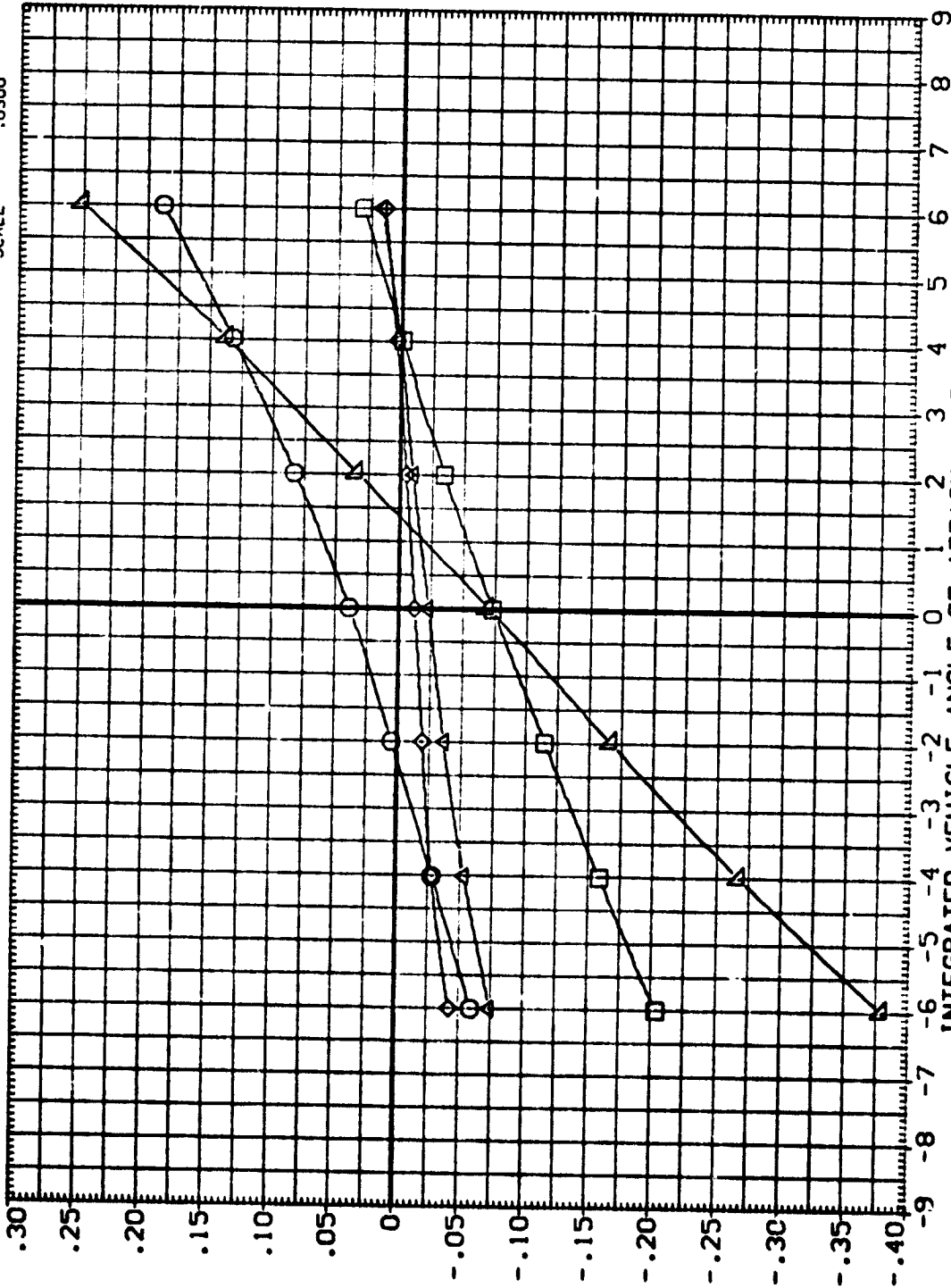


FIG. 12 LONGITUDINAL CHAP. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4
(E)BET.1 = 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(ME1037)	AMES97-019(1A81) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.200	.000	SREF 2590.0000 SQ.FT.
(ME1137)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(ME1237)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.200	.000	BREF 976.0000 IN.
(ME1337)	AMES97-019(1A81) LVAP R-LRB ALL HL SEALED	8.000	-4.000	2.200	.000	XHREF 400.0000 IN.
(ME1437)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.200	.000	ZHREF 400.0000 IN.
						SCALE .0300

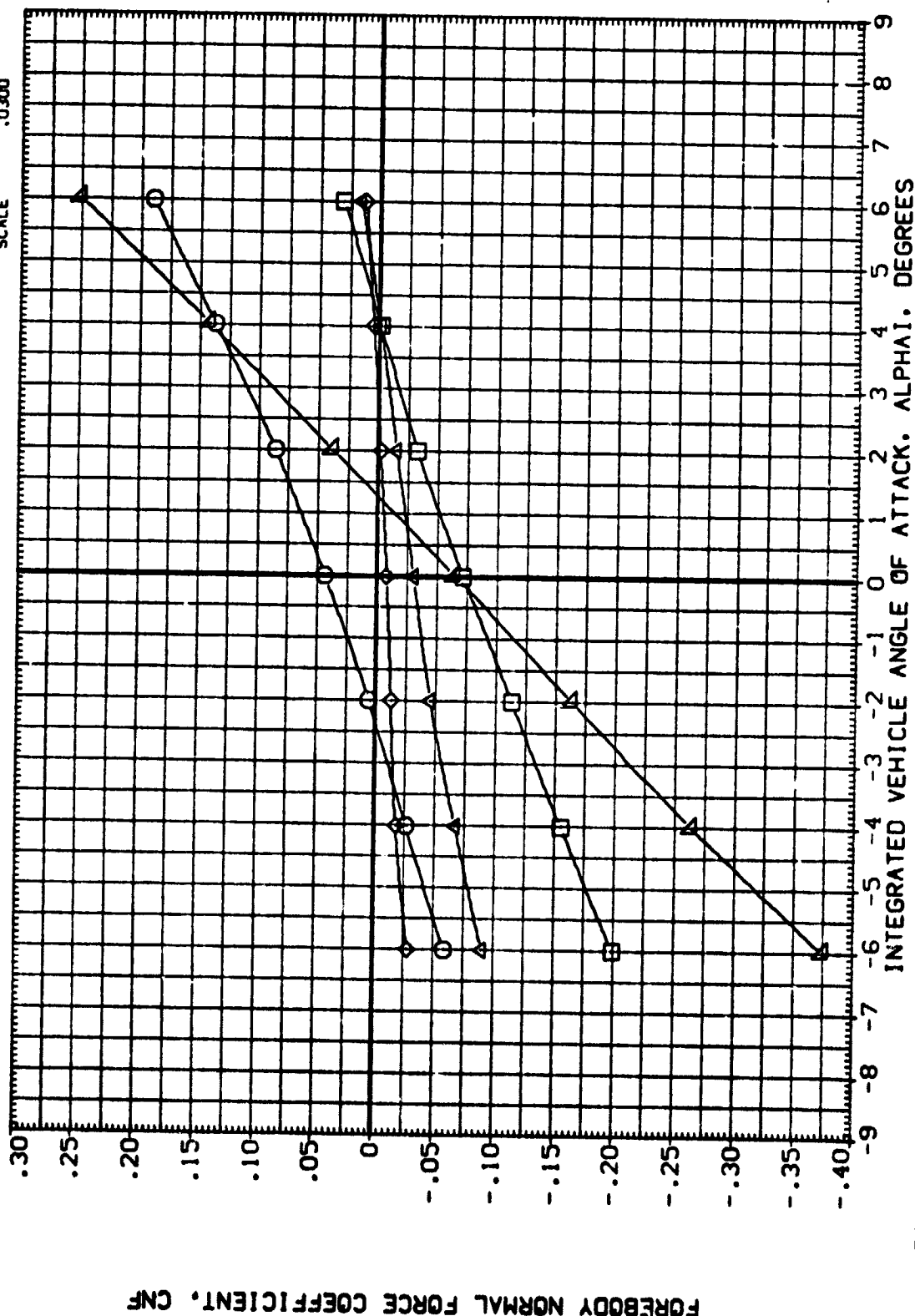


FIG. 12 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4

(F)BET.1 = 4.00

DATA SET SYMBOL CONFIGURATION DESCRIPTION ELV-1B ELV-0B MACH SPOBRK REFERENCE INFORMATION

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(MET037)	AMES97-019(IAB1) LVAP ORBITTER-ALL HL SEALED	8.000	-4.000	2.200	.000	SREF 2690.0000 SQ.FT.
(MET137)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(MET137)	AMES97-019(IAB1) LVAP L-SRS - ALL HL SEALED	8.000	-4.000	2.200	.000	BREF 1297.0000 IN.
(MET137)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	8.000	-4.000	2.200	.000	XMRP 976.0000 IN. XT
(MET137)	AMES97-019(IAB1) LVAP INT VEN ALL HL SEALED	8.000	-4.000	2.200	.000	YMRP 400.0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

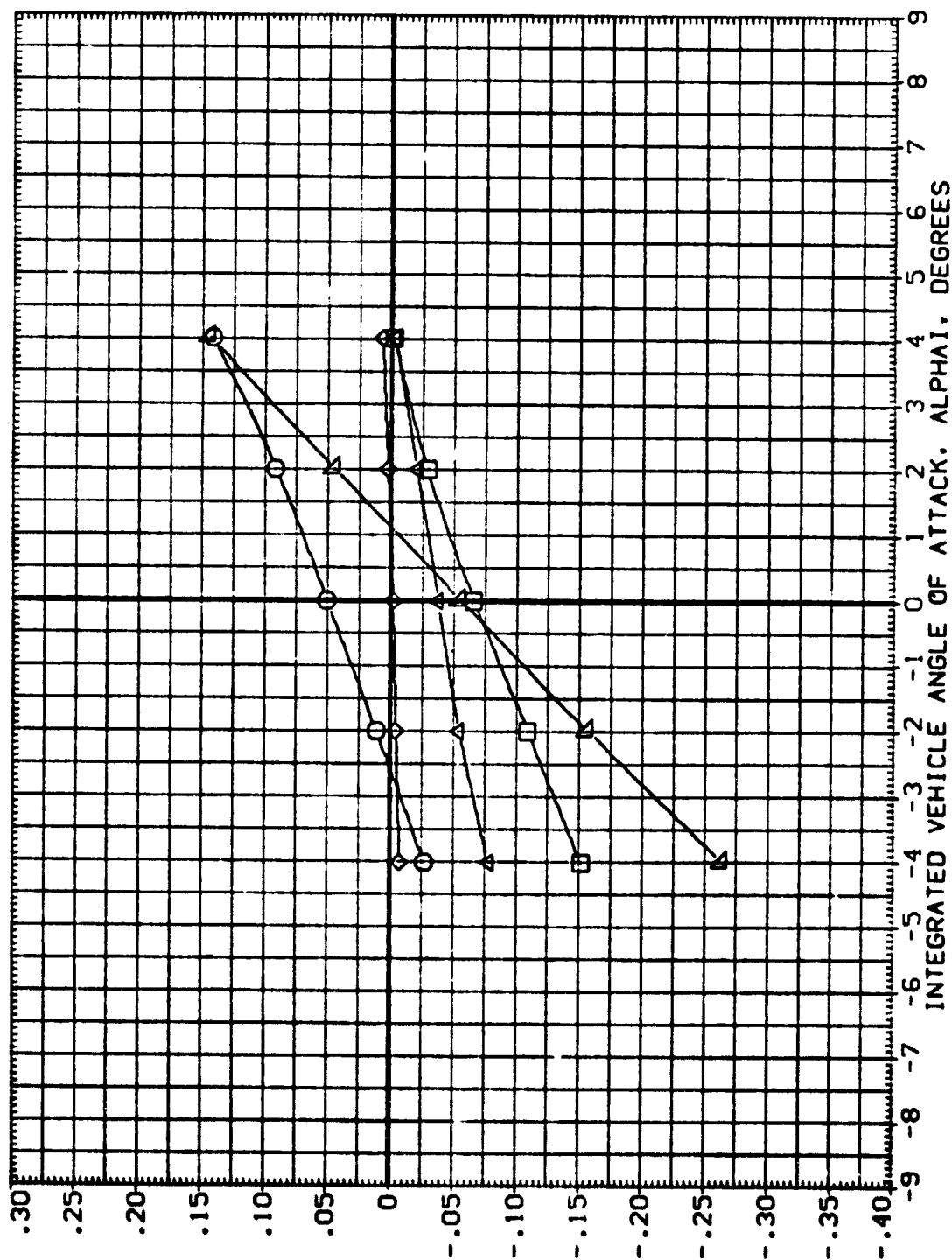


FIG. 12 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4

(G)BET.I = 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(MET037)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.200	.000	SREF 2690.0000 SQ.FT.
(MET137)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(METL37)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.200	.000	BREF 1297.0000 IN.
(METR37)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.200	.000	XMRP 976.0000 IN. XT
	AMES97-019(IAB1) LVAP	8.000	-4.000	2.200	.000	YMRP .0000 IN. YT
	AMES97-019(IAB1) LVAP	8.000	-4.000	2.200	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

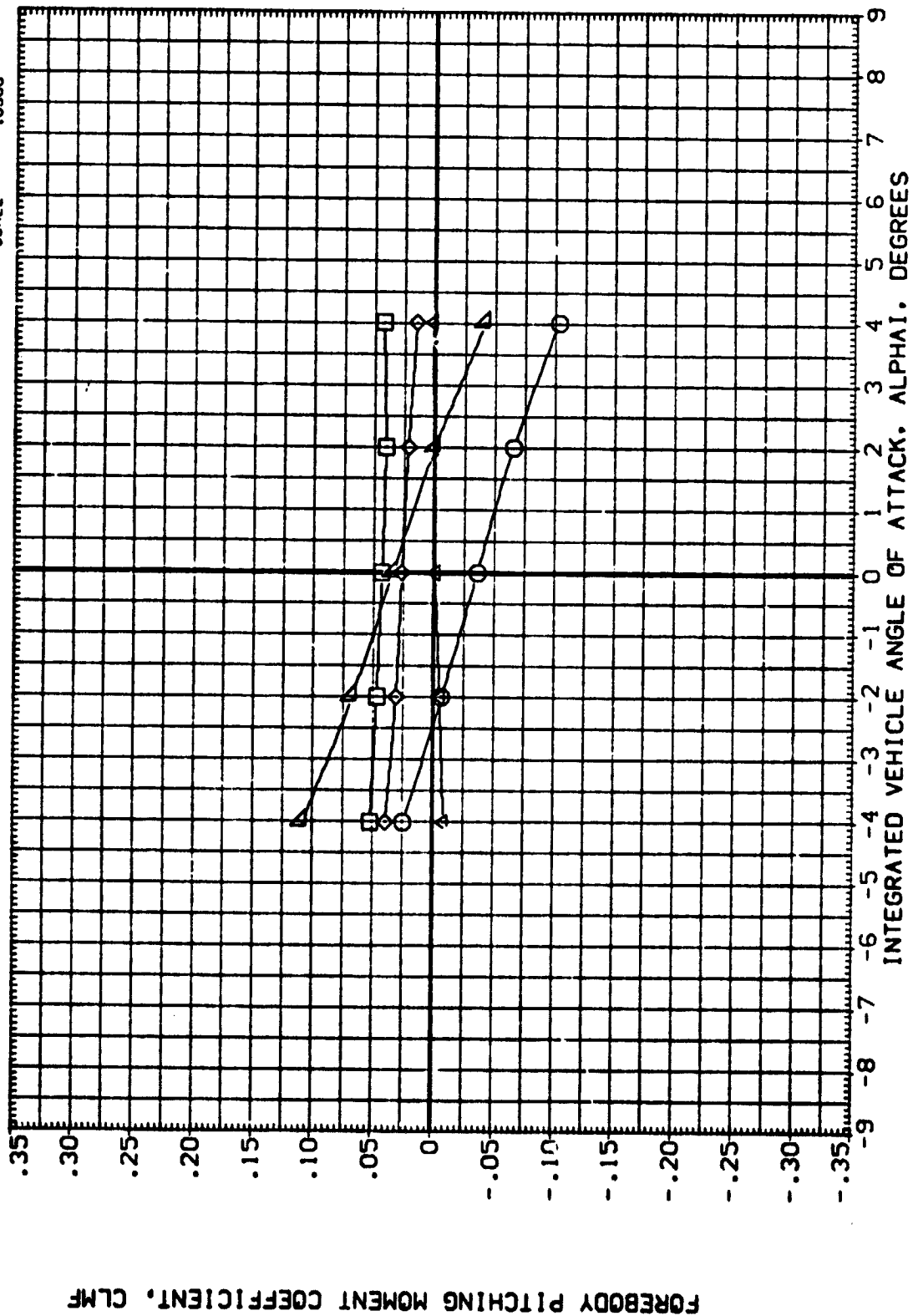


FIG. 12 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4

(AJBET, I = -6.00

DATA SET SYMBOL CONFIGURATION DESCRIPTION

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(MET137)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.200	.000	SREF 2690.0000 SQ.FT.
(MET137)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(MET137)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.200	.000	BREF 1297.0000 IN.
(MET137)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.200	.000	XMRP 976.0000 IN.
(MET137)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.200	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

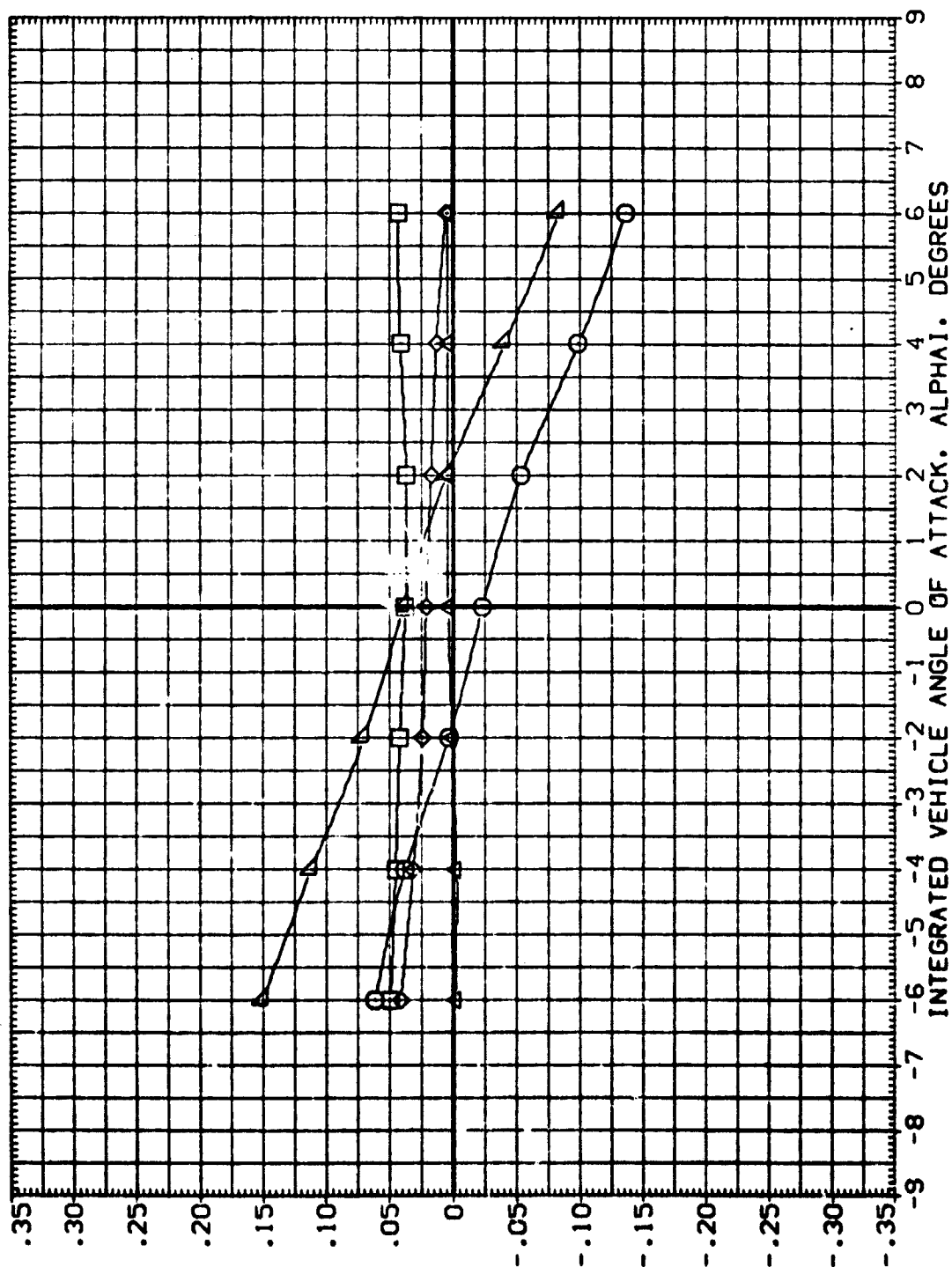


FIG. 12 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4

(B)BET.1 = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(MET037)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.200	.000	SREF 2690.0000 SO.FT.
(MET137)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(METL37)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.200	.000	BREF 1297.0000 IN.
(METR37)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.200	.000	XMRP 976.0000 IN.
(METI37)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.200	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

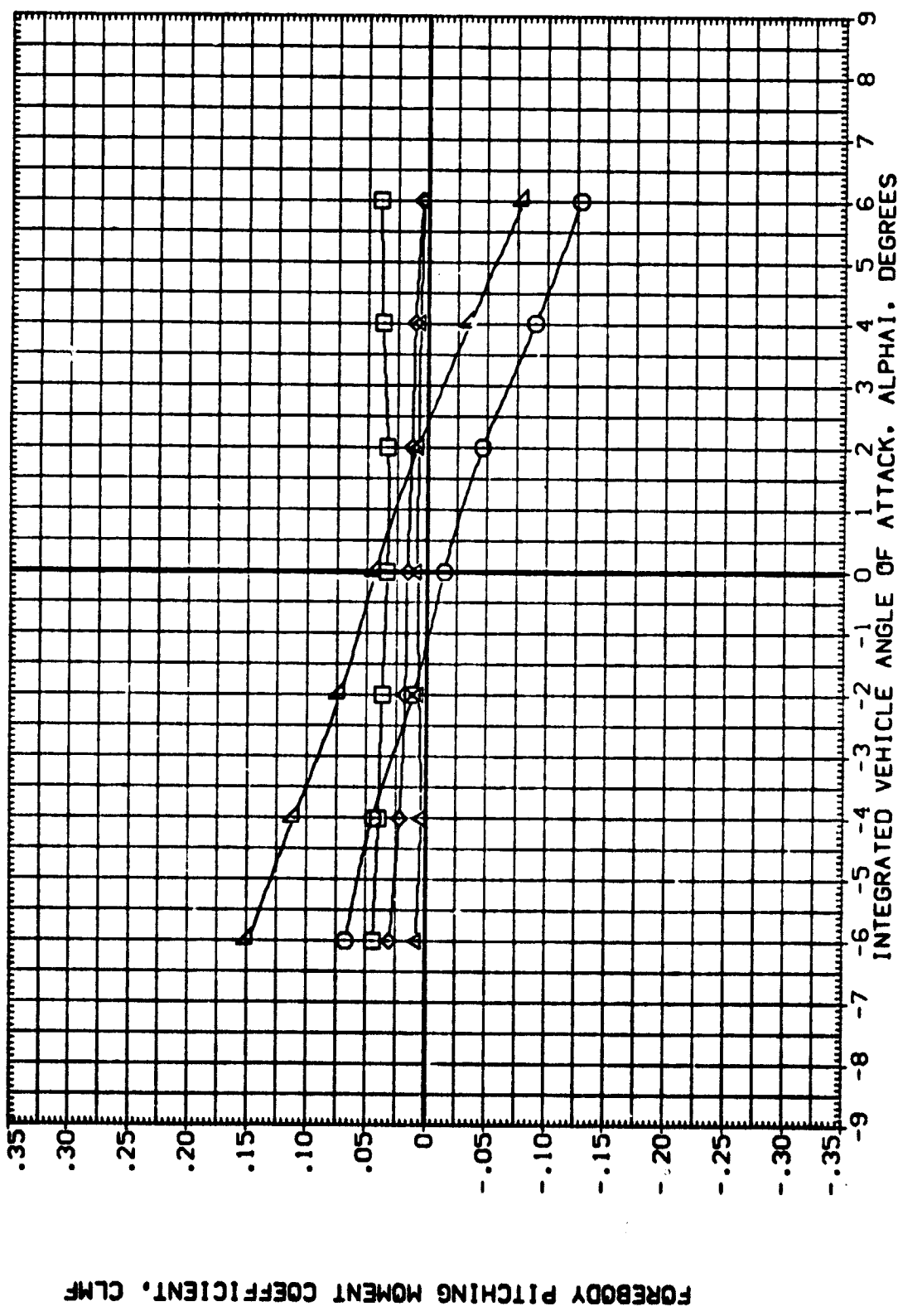


FIG. 12 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4

(C)BET.1 = -2.00

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (MET037) AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED
 (MET137) AMES97-019(IAB1) LVAP TANK - ALL HL SEALED
 (MET137) AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED
 (MET137) AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED
 (MET137) AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED

ELV-18 ELV-08 MACH SPOBRK REFERENCE INFORMATION
 8.000 -4.000 2.200 .000 SREF 2690.0000 SQ.FT.
 8.000 -4.000 2.200 .000 LREF 1297.0000 IN.
 8.000 -4.000 2.200 .000 BREF 1297.0000 IN.
 8.000 -4.000 2.200 .000 YMRP 976.0000 IN. XT
 8.000 -4.000 2.200 .000 ZMRP 400.0000 IN. YT
 SCALE .0300

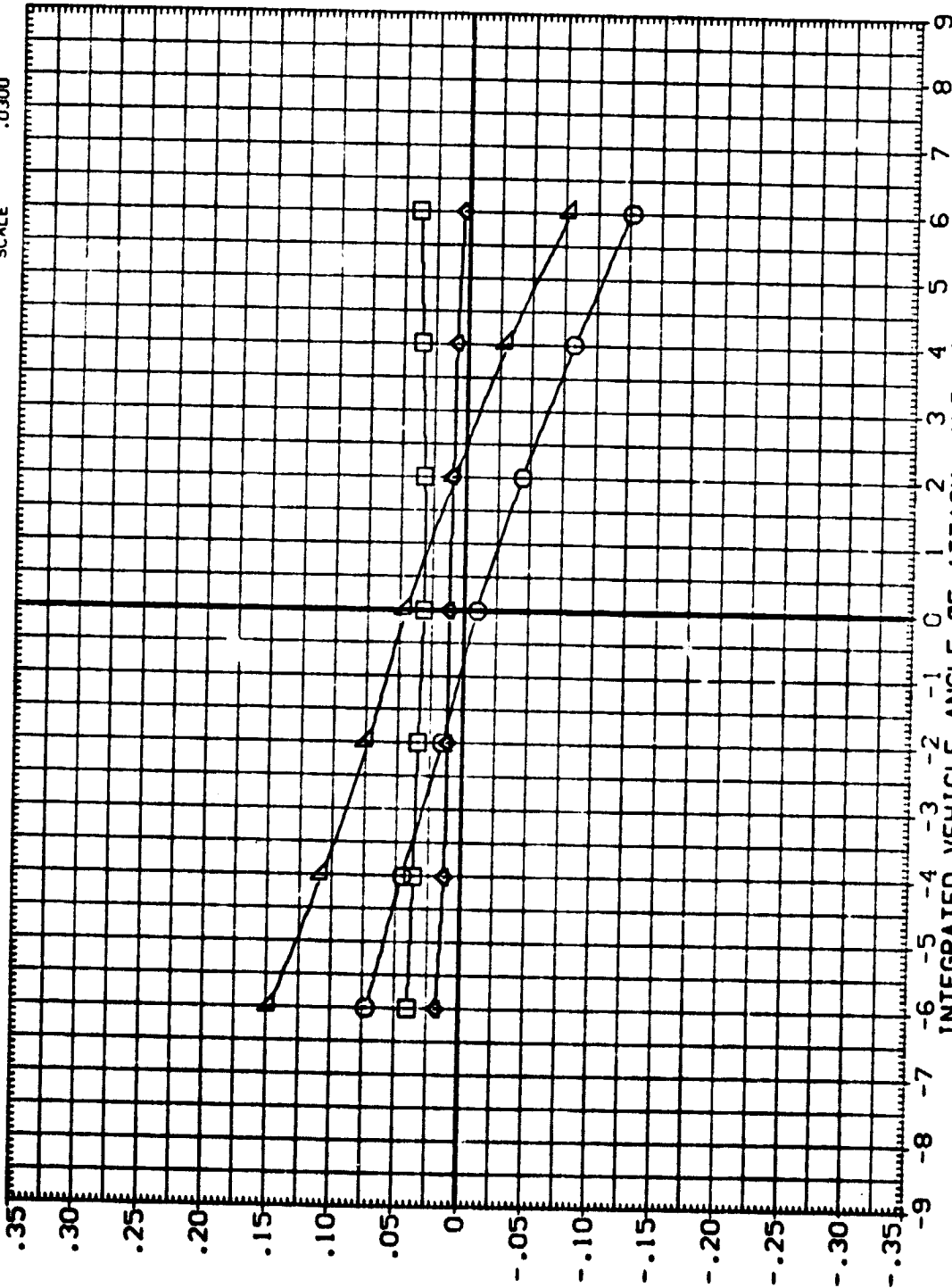
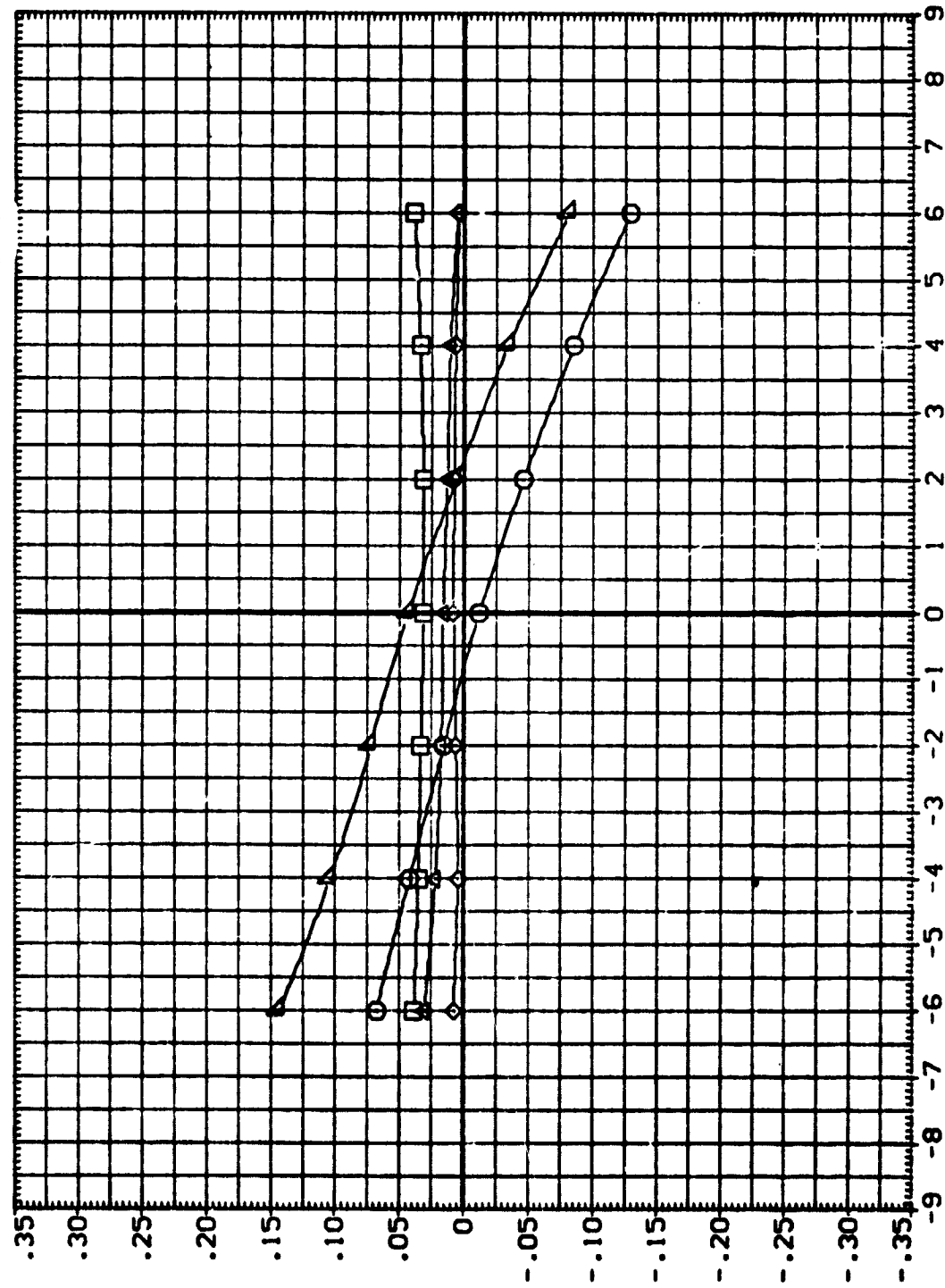


FIG. 12 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4

(O)BET 1 = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPORRK	REFERENCE INFORMATION
(MET037)	APES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.200	.000	SREF 2690.0000 SO.FT.
(MET137)	APES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(MET137)	APES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.200	.000	BREF 1297.0000 IN.
(MET137)	APES97-019(IAB1) LVAP R-LRB ALL HL SEALED	8.000	-4.000	2.200	.000	XMRP 976.0000 IN. XT
(MET137)	APES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.200	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300



FOREBODY PITCHING MOMENT COEFFICIENT, CLMF

FIG. 12 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4

(E)BETA.I = 2.00

DATA SET SYMBOL

	CONFIGURATION	DESCRIPTION
OR81	APE S97-019C(A81)	LVP
TAN6	APE S97-019C(A81)	LVP
L-SR6	APE S97-019C(A81)	LVP
R-LRB	APE S97-019C(A81)	LVP
INT VET	APE S97-019C(A81)	LVP

TER-ALL HL SEALED
- ALL HL SEALED
- ALL HL SEALED
ALL HL SEALED
ALL HL SEALED

ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION	
8.000	-4.000	2.200	.000	SREF	2690.0000
8.000	-4.000	2.200	.000	LREF	1297.0000
8.000	-4.000	2.200	.000	BREF	1297.0000
8.000	-4.000	2.200	.000	XBRP	976.0000
8.000	-4.000	2.200	.000	YBRP	400.0000
8.000	-4.000	2.200	.000	ZBRP	.0300
				SCALE	

FOREBODY PITCHING MOMENT COEFFICIENT, CLMF

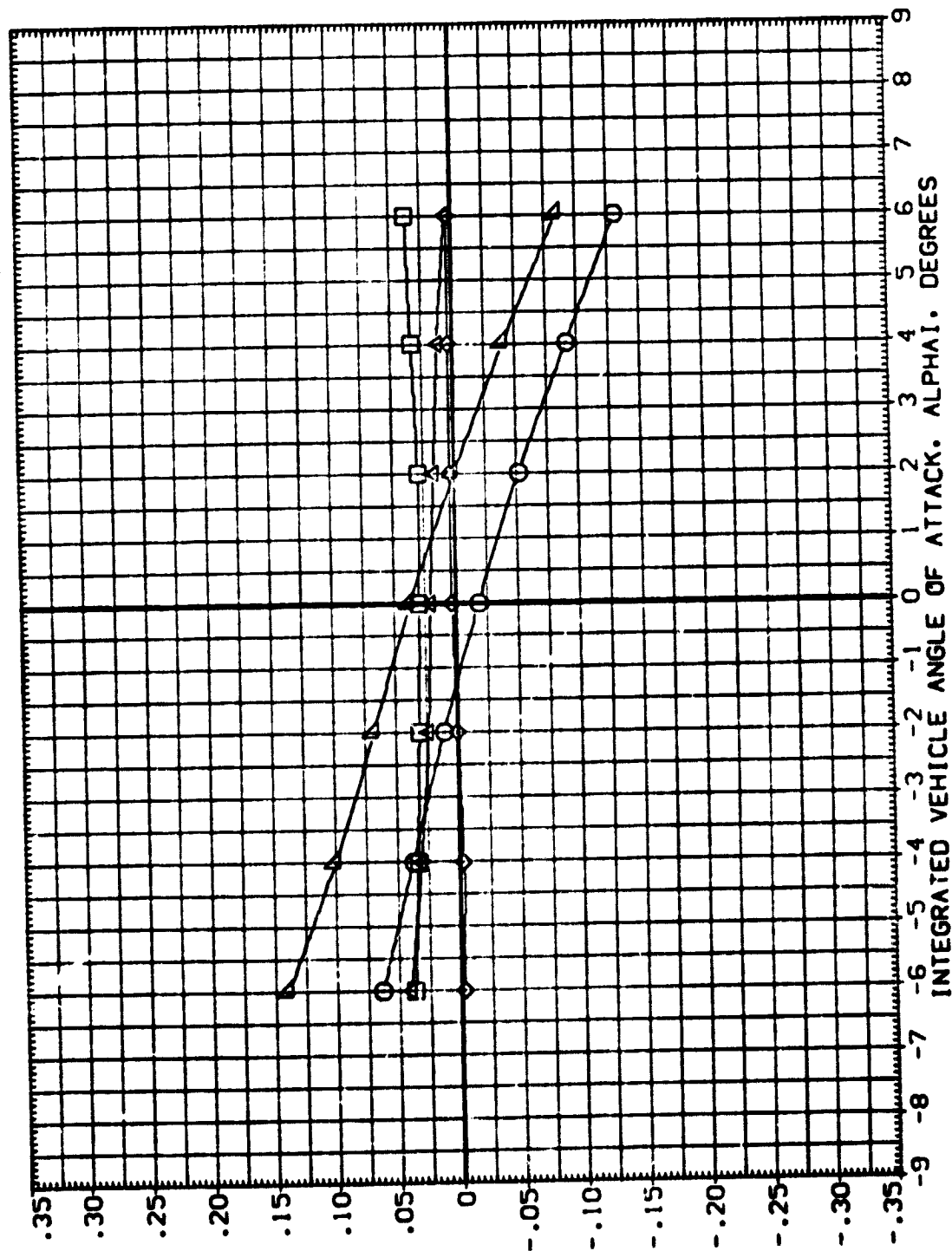


FIG. 12 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=2.2$ $DEV=8/-4$

(F)BET.VI = 4.00

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(MET137)	APES97-019C(1A81) LVAP ORBITTER-ALL HL SEALED	8.000	-4.000	2.200	.000	SREF 2690.0000 SO.FT.
(MET137)	APES97-019C(1A81) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(MET137)	APES97-019C(1A81) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.200	.000	BREF 1297.0000 IN.
(MET137)	APES97-019C(1A81) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.200	.000	XMRP 976.0000 IN. XT
(MET137)	APES97-019C(1A81) LVAP INT VEM ALL HL SEALED	8.000	-4.000	2.200	.000	VMRP 400.0000 IN. VT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

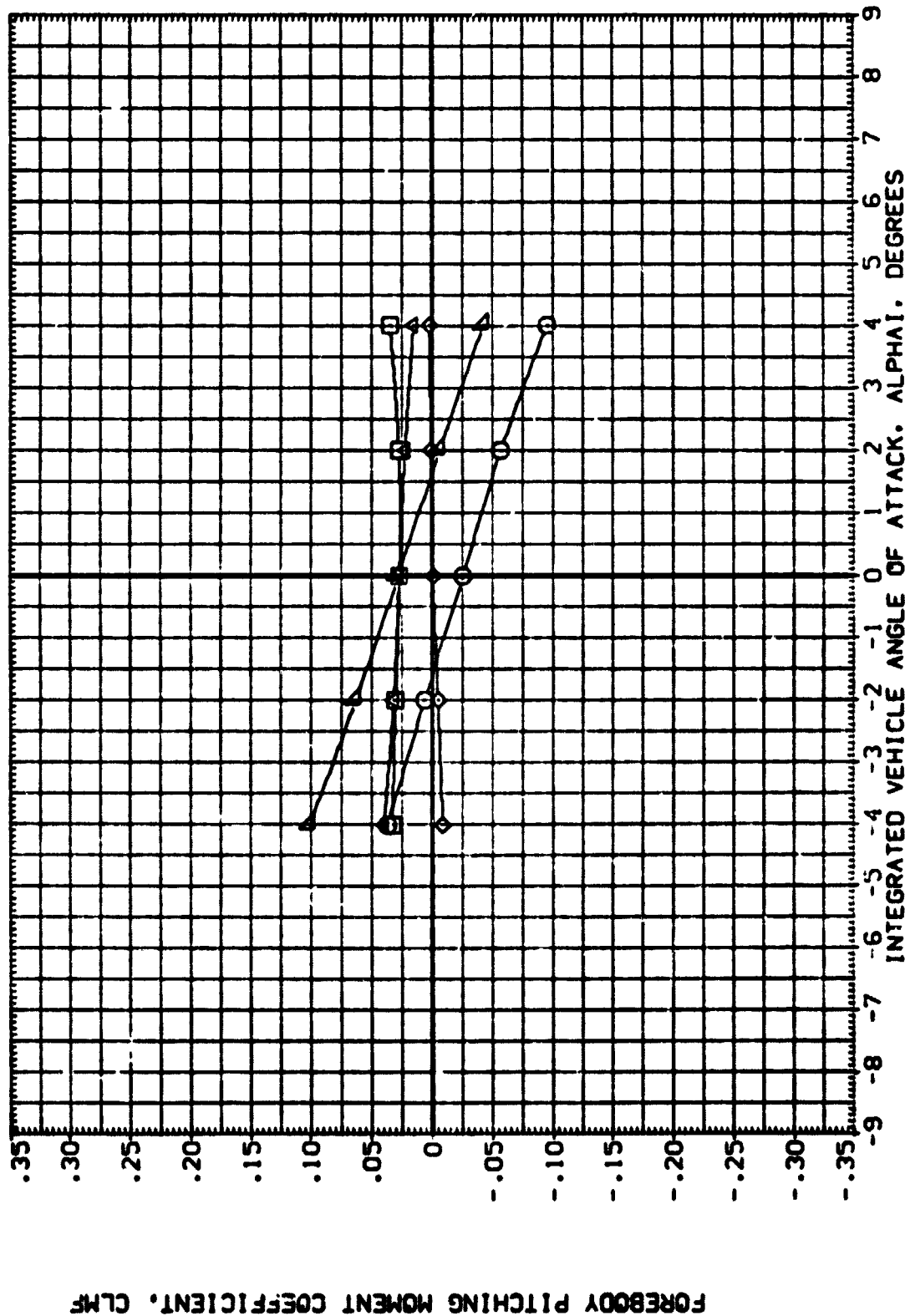


FIG. 12 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4

(G)BET.1 = 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRMK	REFERENCE INFORMATION
(MET037)	ANE 987-0191 (AB1) LVAP ORBITER-ALL ML SEALED	8.000	-4.000	2.200	.000	SREF 2690.0000 SQ.FT.
(MET137)	ANE 987-0191 (AB1) LVAP TANK - ALL ML SEALED	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(MET137)	ANE 987-0191 (AB1) LVAP L-SRB - ALL ML SEALED	8.000	-4.000	2.200	.000	BREF 1297.0000 IN.
(MET137)	ANE 987-0191 (AB1) LVAP R-LRB - ALL ML SEALED	8.000	-4.000	2.200	.000	XMRP 976.0000 IN.
(MET137)	ANE 987-0191 (AB1) LVAP INT VEN - ALL ML SEALED	8.000	-4.000	2.200	.000	ZMRP .0000 IN.
						SCALE 400.0000 IN. 2T

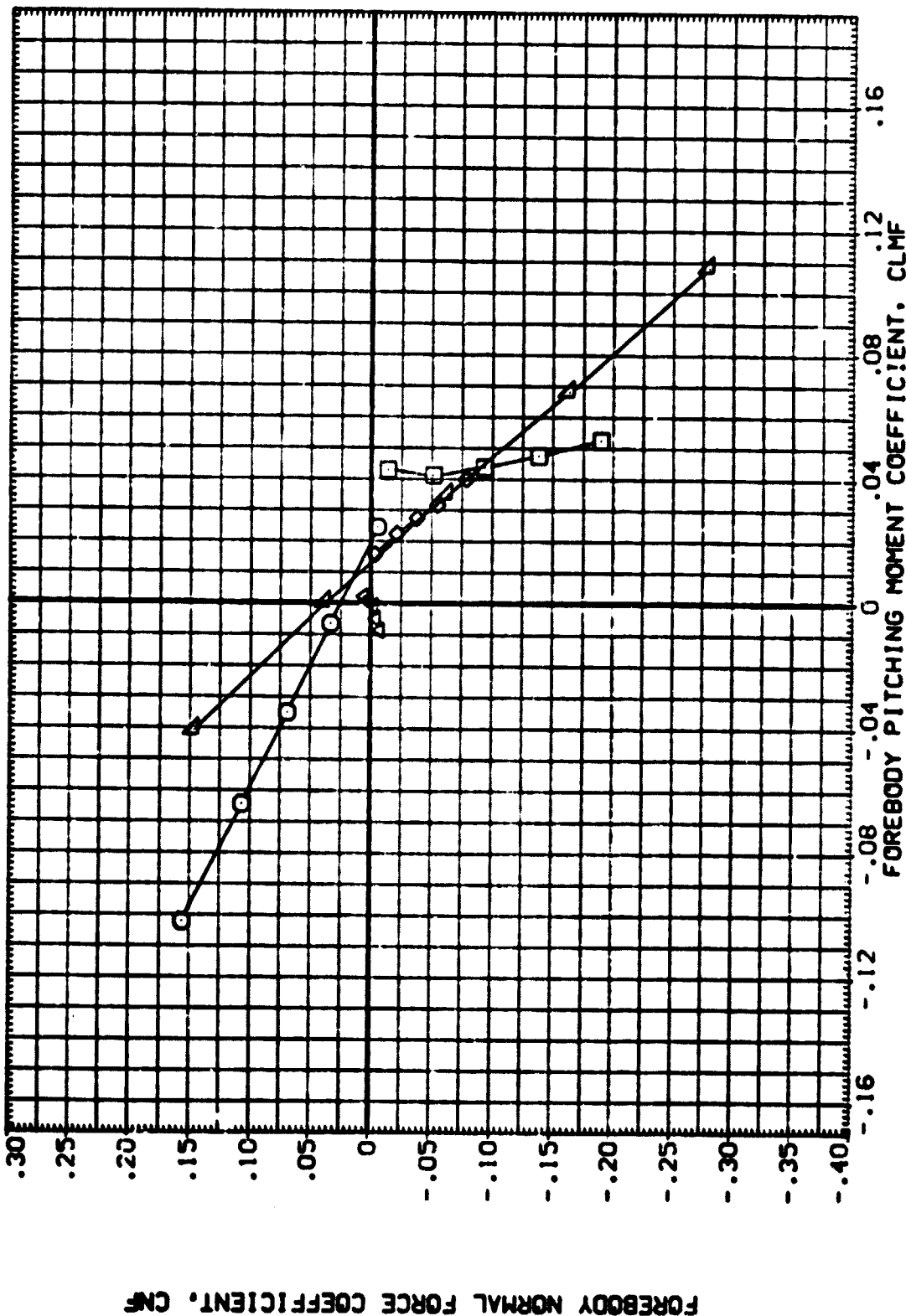


FIG. 12 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4

(A) BET. I = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-10	ELV-08	MACH	SPOBARK	REFERENCE INFORMATION
(MET037)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.200	.000	SREF 2690.0000 SO.FT.
(MET137)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(MET137)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.200	.000	BREF 1297.0000 IN.
(MET137)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.200	.000	XMRP 976.0000 IN. XT
(MET137)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.200	.000	ZMRP 400.0000 IN. VT
(MET137)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.200	.000	SCALE .0300

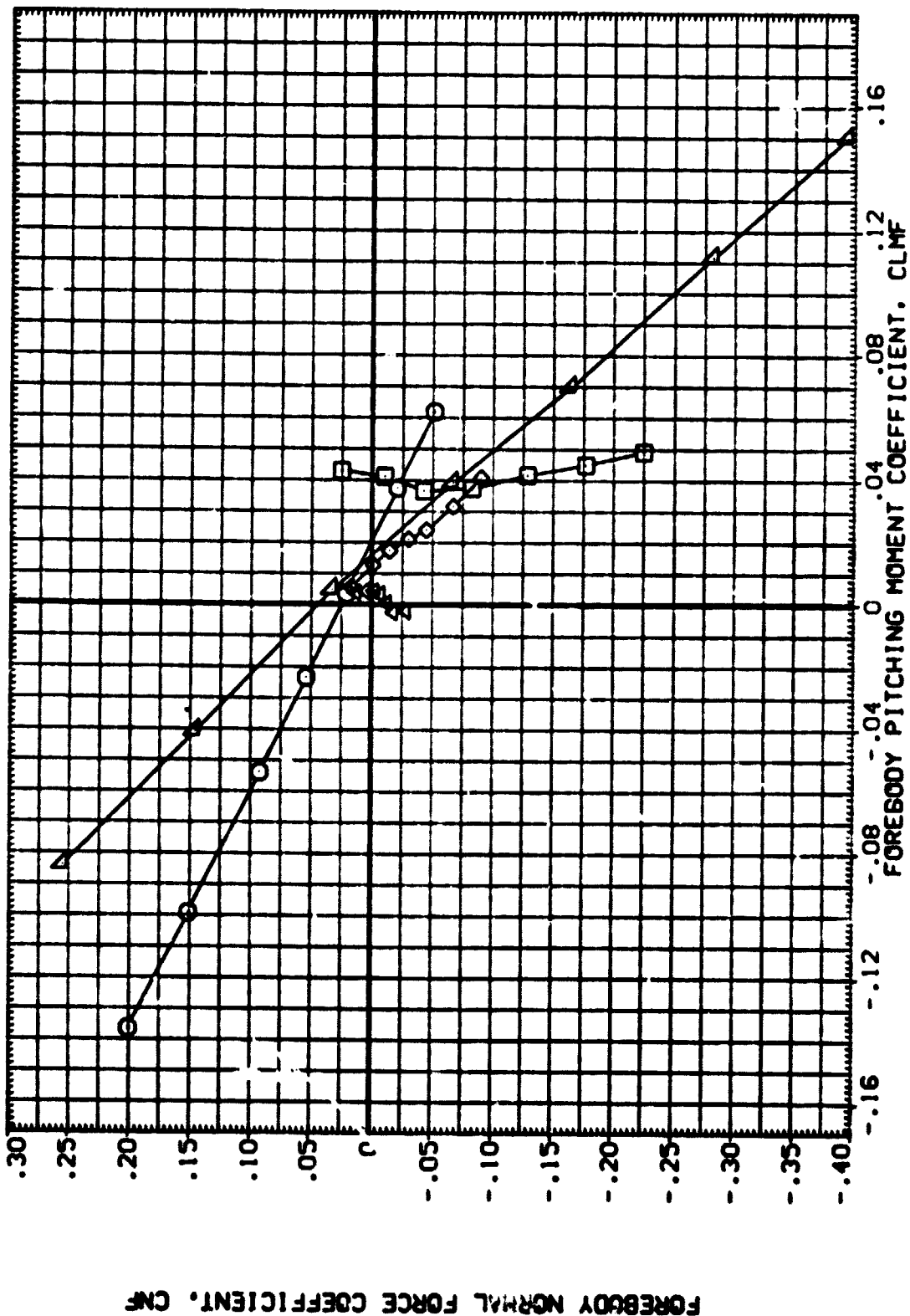


FIG. 12 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4
(B)BETA1 = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(NET007)	AME597-019(1A81) LVAP	8.000	-4.000	2.200	.000	SRUF 2690.0000 SO.FT.
(NET137)	AME597-019(1A81) LVAP	8.000	-4.000	2.200	.000	LRUF 1297.0000 IN.
(NET137)	AME597-019(1A81) LVAP	8.000	-4.000	2.200	.000	SRUF 1297.0000 IN.
(NET137)	AME597-019(1A81) LVAP	8.000	-4.000	2.200	.000	YMRP 976.0000 IN. YI
(NET137)	AME597-019(1A81) LVAP	8.000	-4.000	2.200	.000	ZMRP 400.0000 IN. ZI
						SCALE .0300

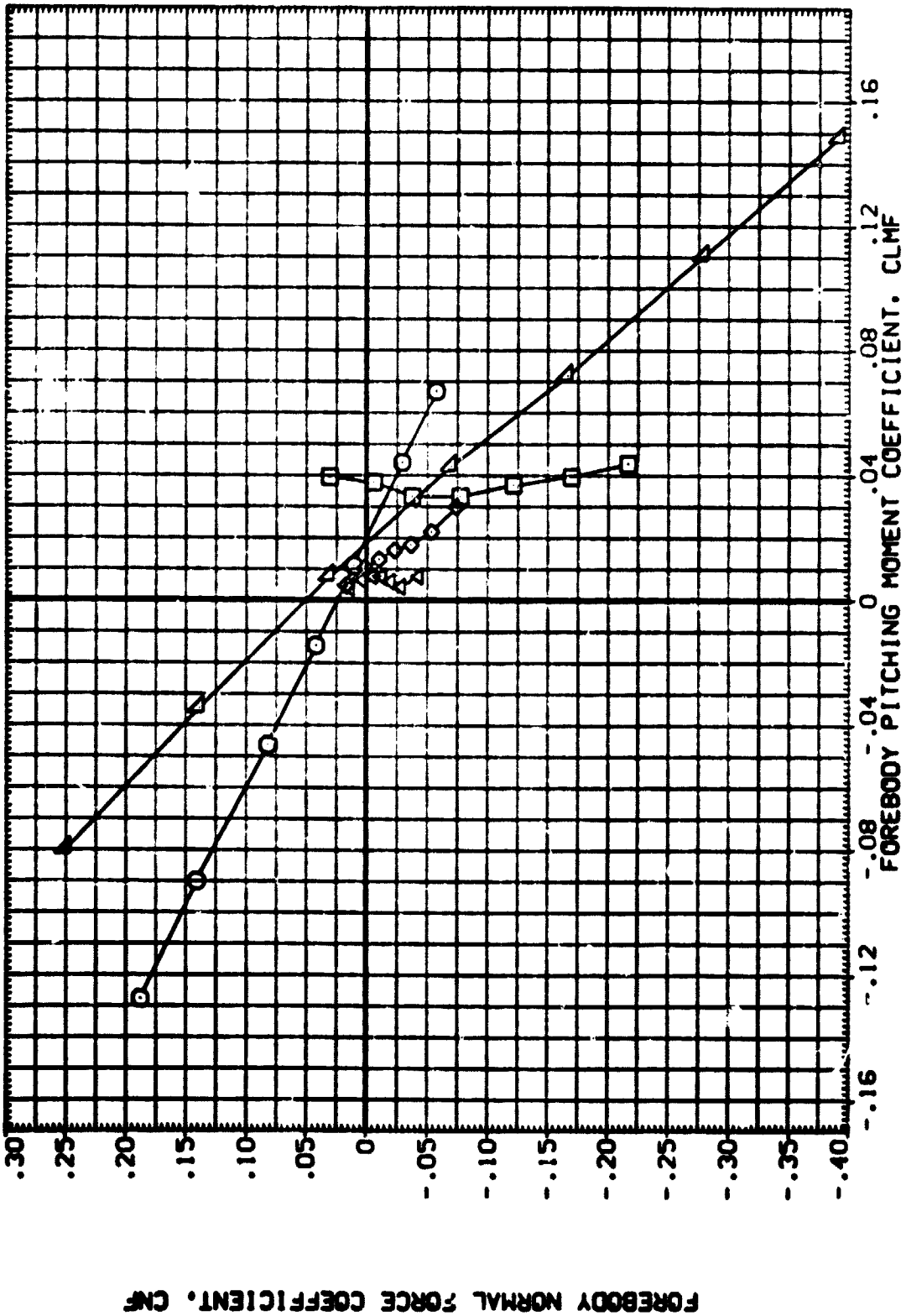


FIG. 12 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=δ/-4

(C)BET.1 = -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(MET037)	AMES97-019(1A81) LVAP ORBITTER-ALL HL SEALED	8.000	-4.000	2.200	.000	SREF 2690.0000 SQ.FT.
(MET137)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(MET137)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.200	.000	BREF 1297.0000 IN.
(MET137)	AMES97-019(1A81) LVAP R-LRB ALL HL SEALED	8.000	-4.000	2.200	.000	XHRP 976.0000 IN. XT
(MET137)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.200	.000	ZHRP 400.0000 IN. YT
						SCALE .0300

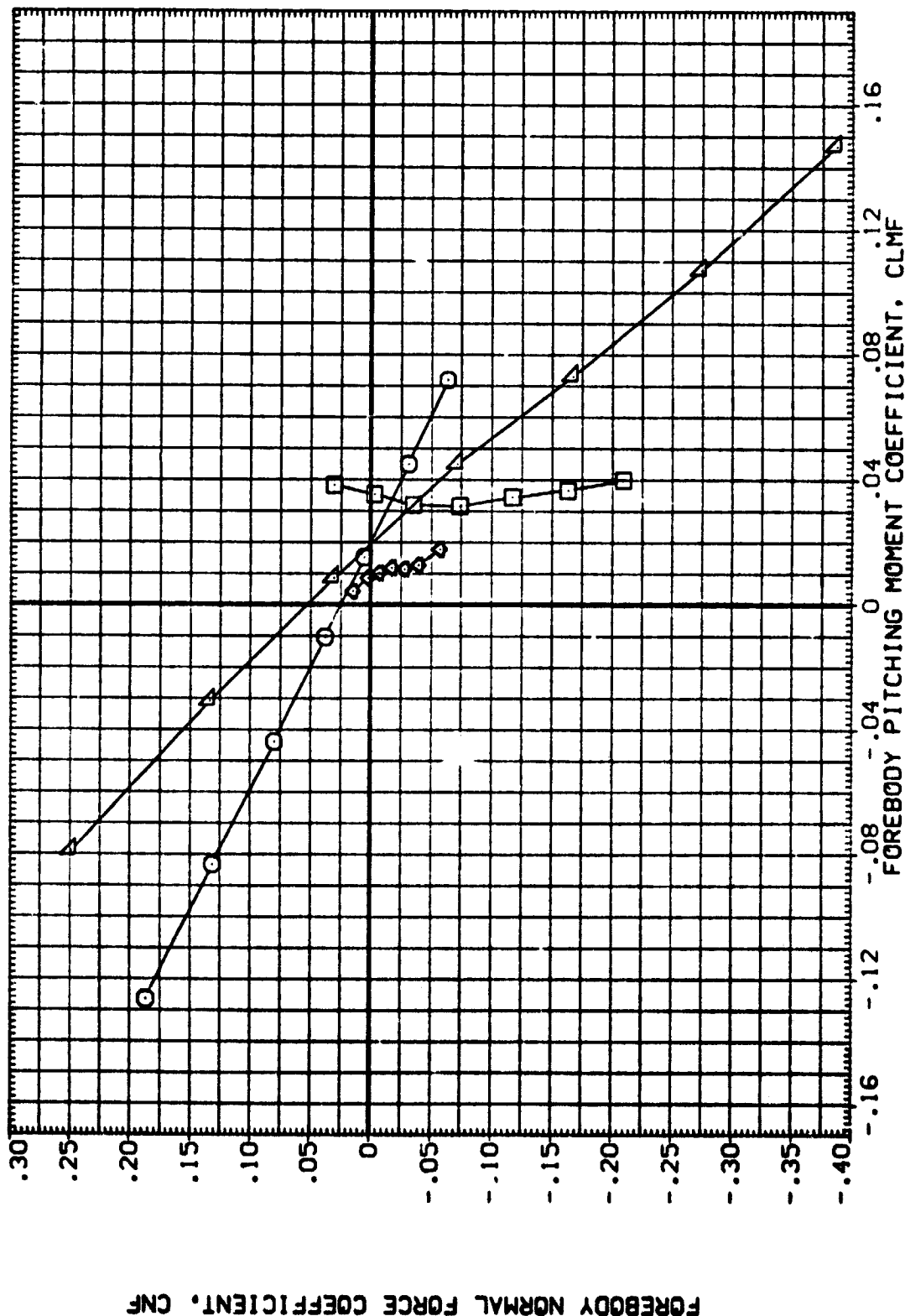


FIG. 12 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4

(DBETA) = .00

DATA SET SYMBOL CONFIGURATION DESCRIPTION ORBITTER-ALL ELV-08 MACH SPOBRK REFERENCE INFORMATION

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ORBITTER-ALL	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(MET037)	AVES97-019(IAB1) LVAP	ALL	8.000	2.200	.000	SREF 2690.0000 SQ.FT.
(MET137)	AVES97-019(IAB1) LVAP	ALL	8.000	2.200	.000	LREF 1297.0000 IN.
(MET137)	AVES97-019(IAB1) LVAP	ALL	8.000	2.200	.000	BREF 1297.0000 IN.
(MET137)	AVES97-019(IAB1) LVAP	ALL	8.000	2.200	.000	XHRP 976.0000 IN.
(MET137)	AVES97-019(IAB1) LVAP	ALL	8.000	2.200	.000	YHRP 400.0000 IN.
(MET137)	AVES97-019(IAB1) LVAP	ALL	8.000	2.200	.000	ZHRP 400.0000 IN.
						SCALE .0300

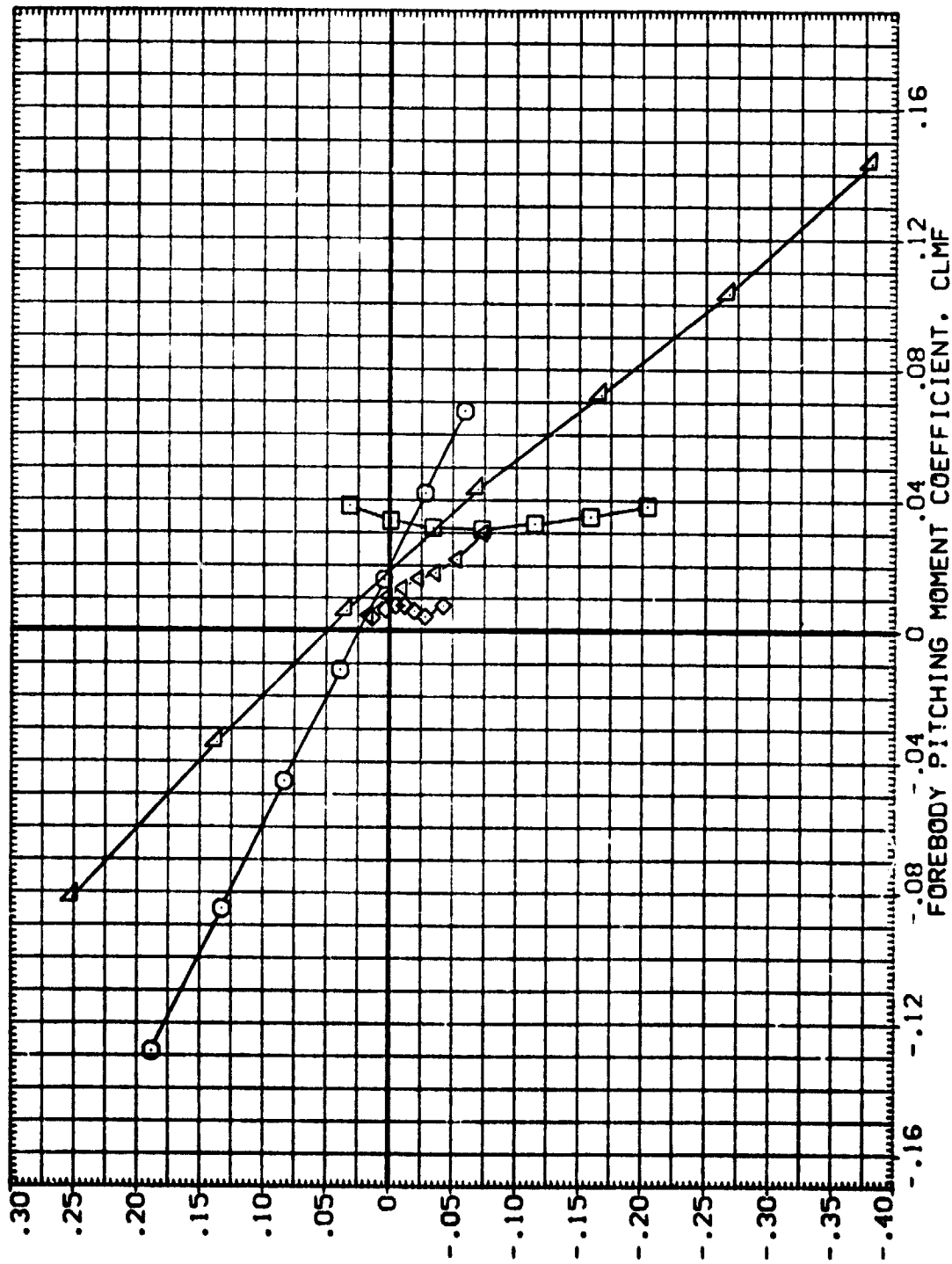


FIG. 12 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4

(E)BETA1 = 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPOBRK	REFERENCE INFORMATION
(MET137)	AMES97-019(IAB1) LVAP ORBITTER-ALL HL SEALED	8.000	-4.000	2.200	.000	SREF 2690.0000 SQ.FT.
(MET137)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(MET137)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.200	.000	SREF 1297.0000 IN.
(MET137)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	8.000	-4.000	2.200	.000	XMRP 576.0000 IN. XT
(MET137)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.200	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

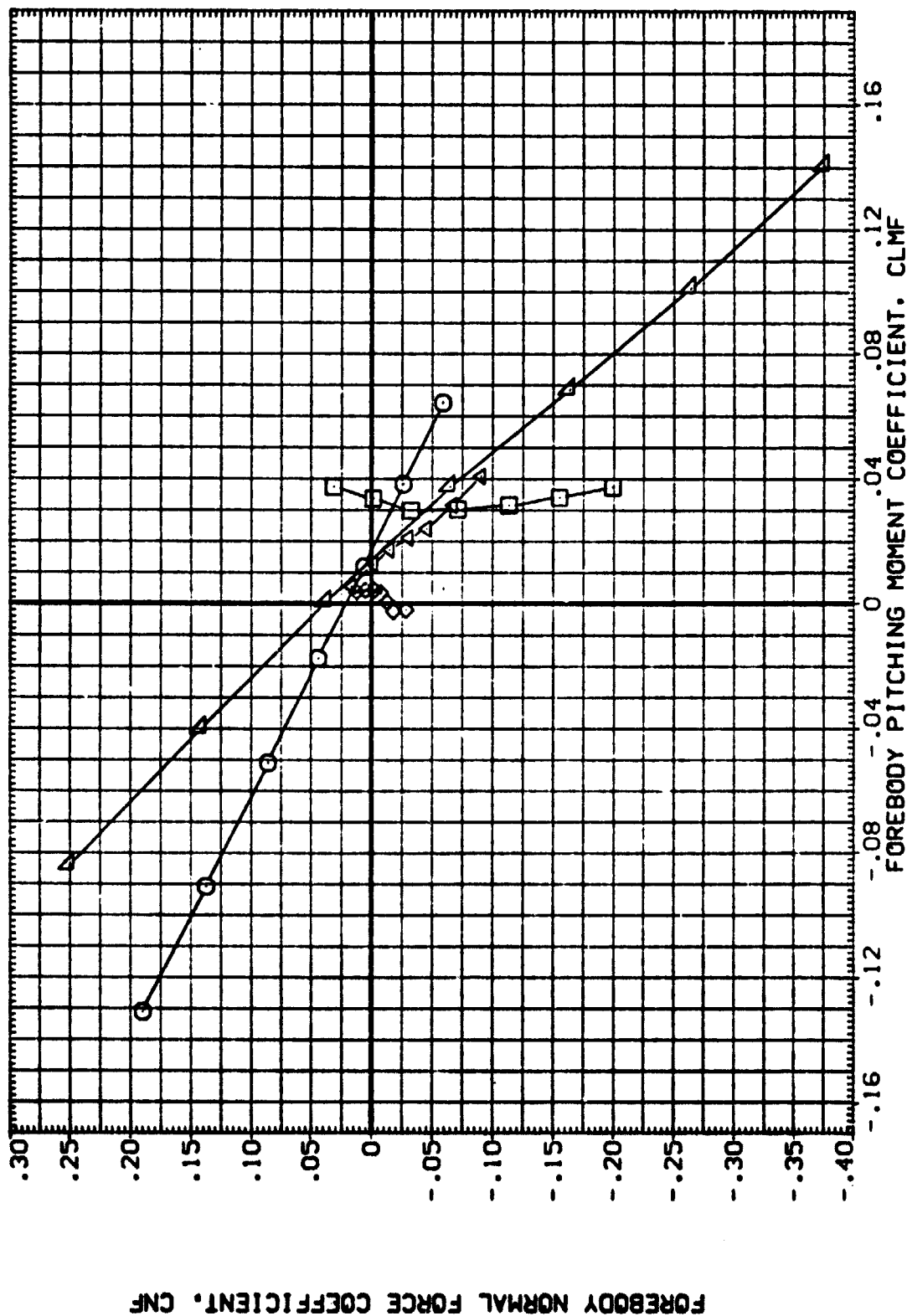


FIG. 12 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4

(FBETA) = 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(NET037)	AMES97-019(1A81) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.200	.000	SREF 2690.0000 SO.FT.
(NET137)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(NET137)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.200	.000	BREF 1297.0000 IN.
(NET137)	AMES97-019(1A81) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.200	.000	YMRP 976.0000 IN.
(NET137)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.200	.000	ZMRP 400.0000 IN.
						SCALE .0300

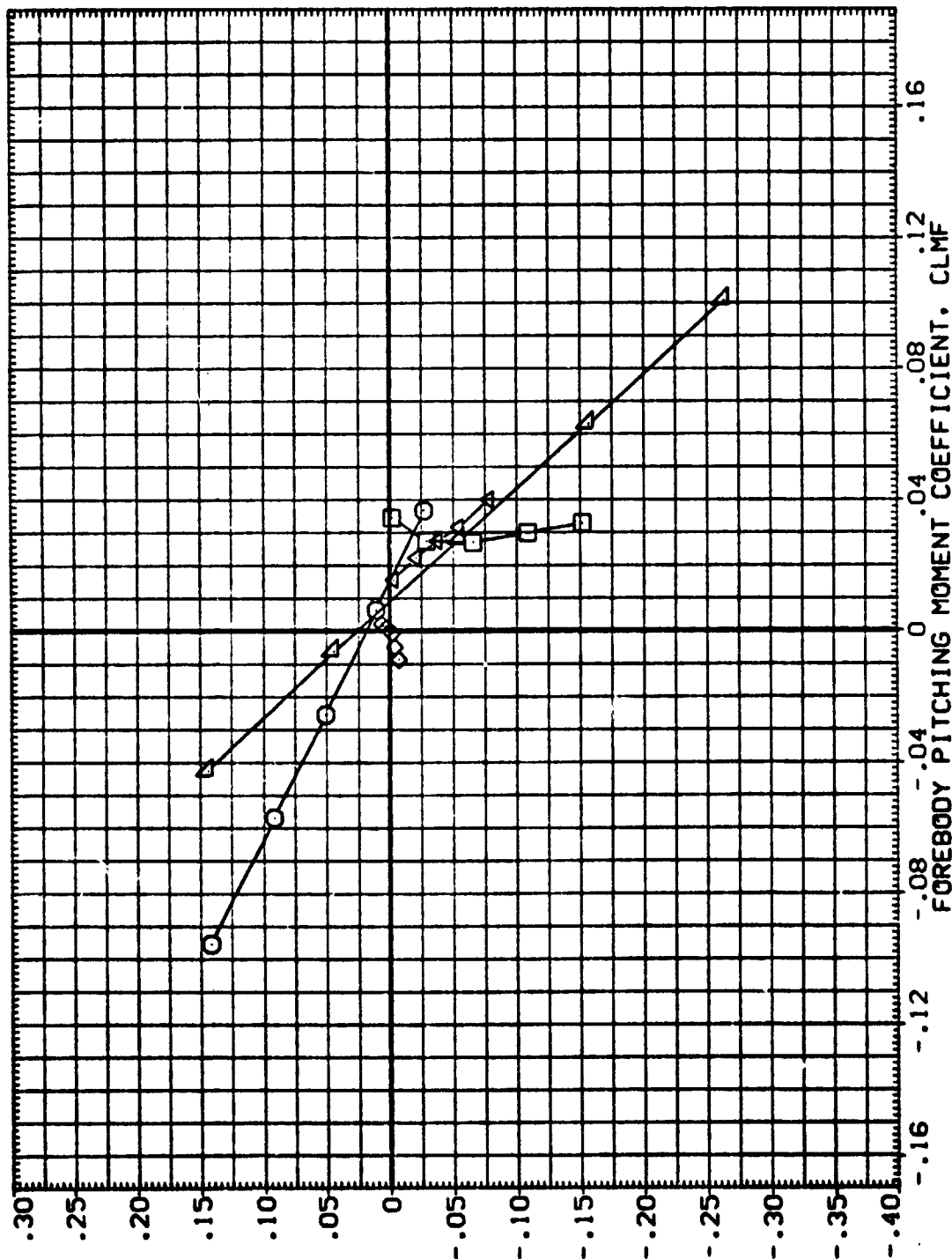


FIG. 12 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4

(G)BET = 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(MET041)	AMES97-019(IAB1) LVAP ORBITER-ALL ML SEALED	.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(MET141)	AMES97-019(IAB1) LVAP TANK - ALL ML SEALED	.000	.000	2.200	.000	LREF 1297.0000 IN.
(METL41)	AMES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	.000	.000	2.200	.000	BREF 1297.0000 IN.
(METR41)	AMES97-019(IAB1) LVAP R-LRB - ALL ML SEALED	.000	.000	2.200	.000	YMRP 976.0000 IN.
(METI41)	AMES97-019(IAB1) LVAP INT VEH ALL ML SEALED	.000	.000	2.200	.000	ZMRP 400.0000 IN.
						SCALE .0300

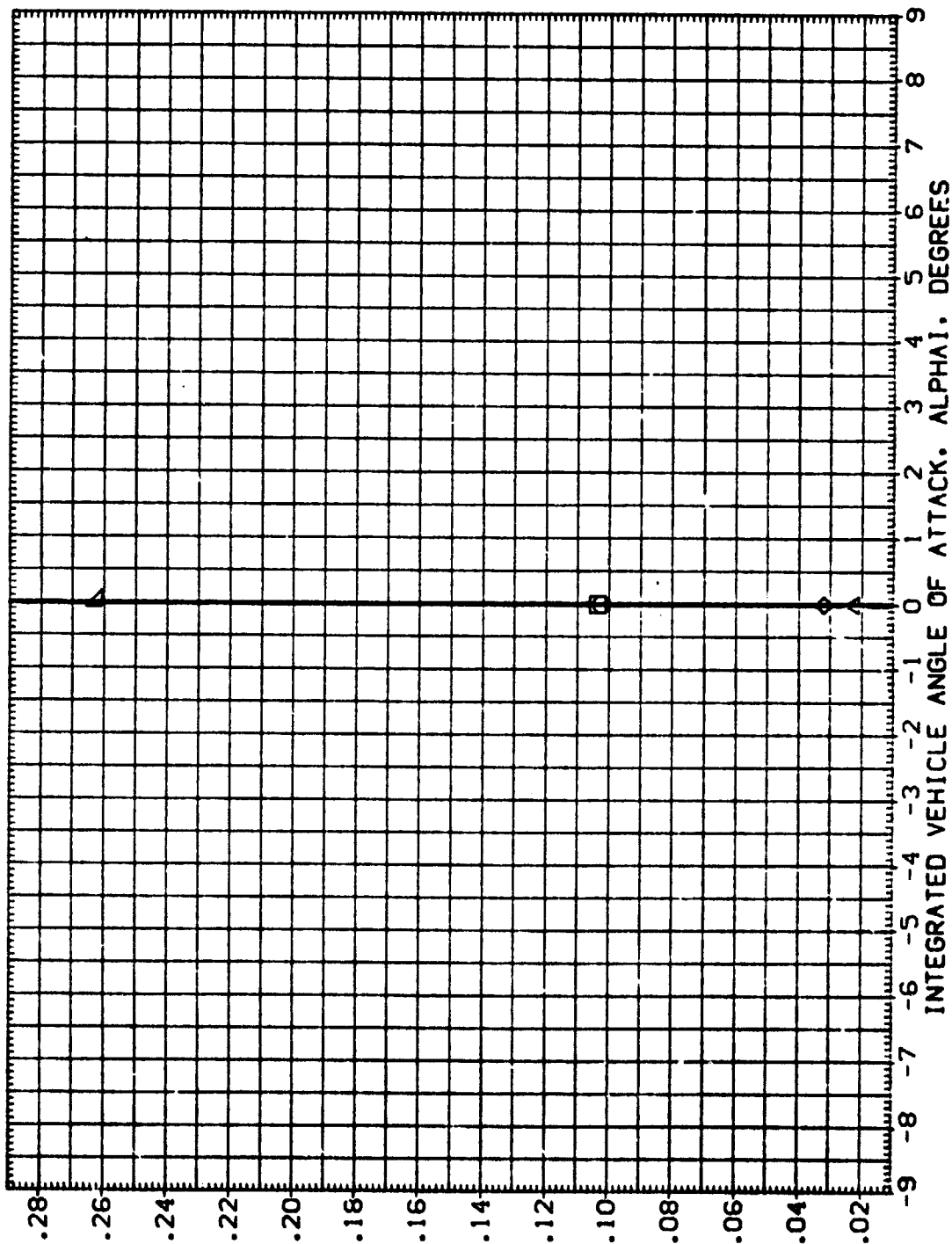


FIG. 13 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=0/0

(A)BET.1 = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(MET041)	AMES97-019(IAB1) LVAP CRBITTER-ALL HL SEALED	.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(MET141)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.200	.000	LREF 1297.0000 IN.
(MET141)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.200	.000	BREF 1297.0000 IN.
(MET141)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	.000	.000	2.200	.000	XMRP 976.0000 IN. XT
(MET141)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.200	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

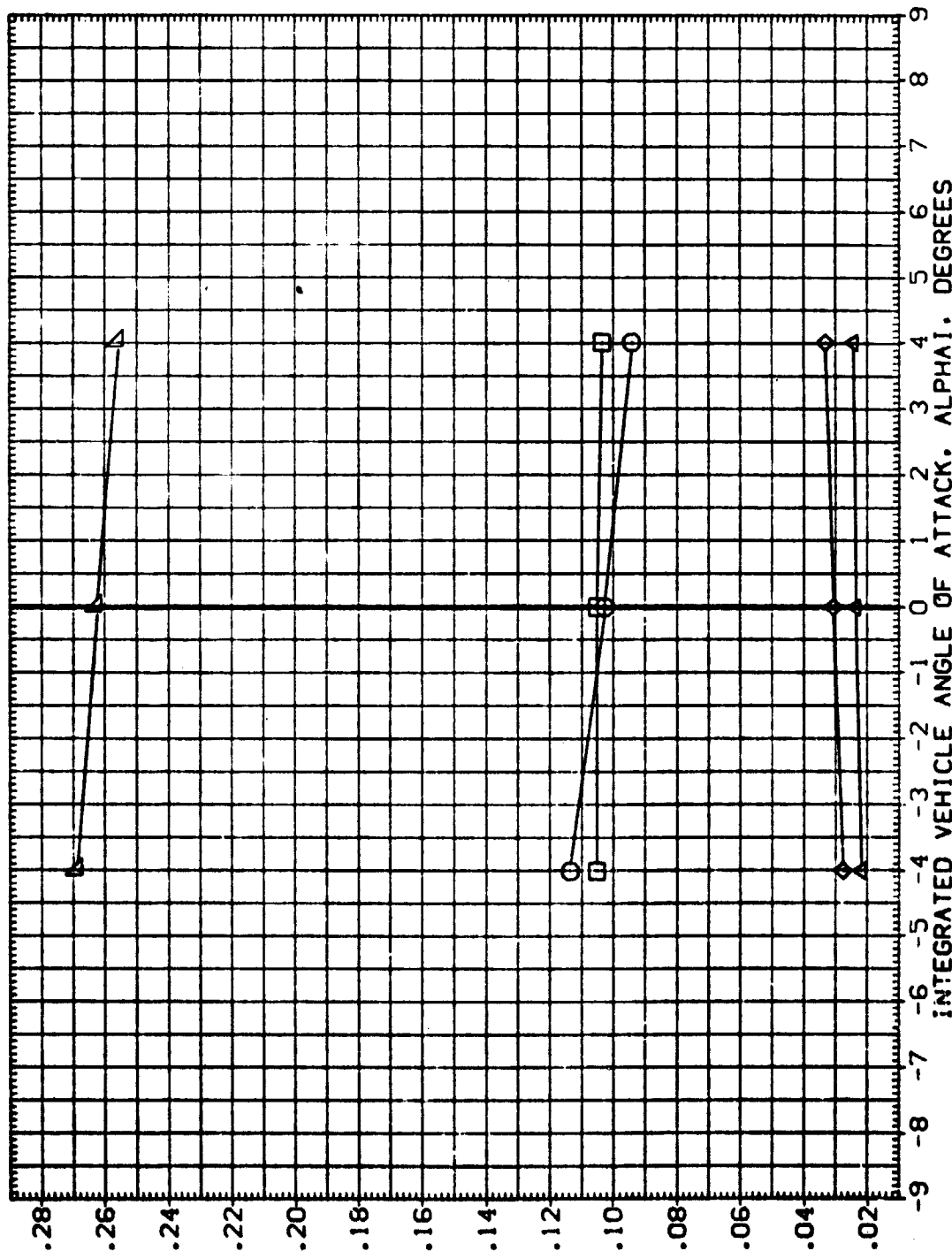


FIG. 13 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=0/0

(B)BET.1 = -4.00

REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(MET041)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(MET141)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.200	.000	LREF 1297.0000 IN.
(METL41)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.200	.000	BREF 1297.0000 IN.
(METR41)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	.000	.000	2.200	.000	XMRP 976.0000 IN.
(METI41)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.200	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

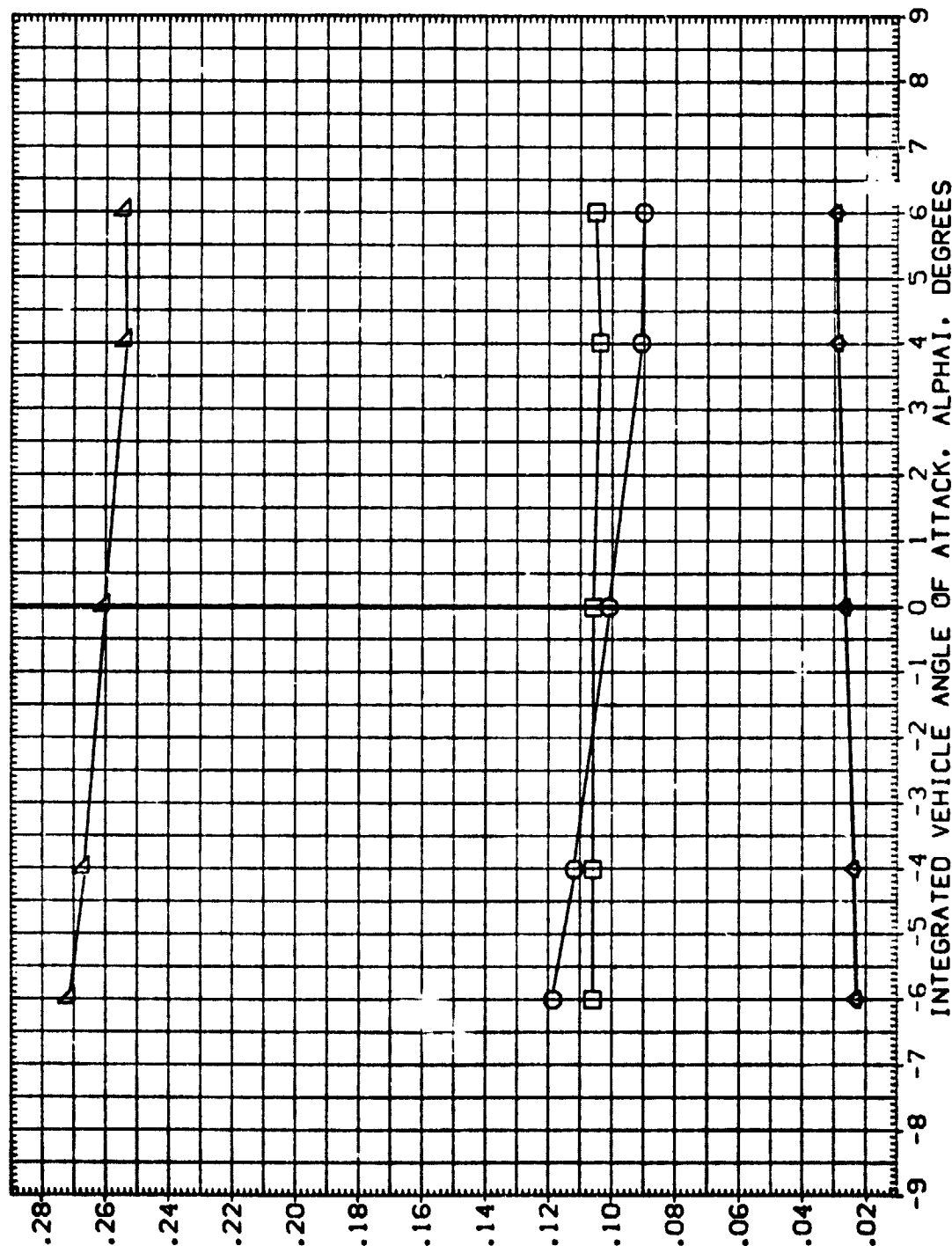


FIG. 13 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=0/0

(C)BET.1 = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(MET041)	AMES97-019C(AS1) LVAP ORBITER-ALL HL SEALED	.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(MET141)	AMES97-019C(AS1) LVAP TANK - ALL HL SEALED	.000	.000	2.200	.000	LREF 1297.0000 IN.
(MET141)	AMES97-019C(AS1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.200	.000	BREF 1297.0000 IN.
(MET141)	AMES97-019C(AS1) LVAP R-LRB - ALL HL SEALED	.000	.000	2.200	.000	XMRP 976.0000 IN. XT
(MET141)	AMES97-019C(AS1) LVAP INT VEH ALL HL SEALED	.000	.000	2.200	.000	YMRP 400.0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

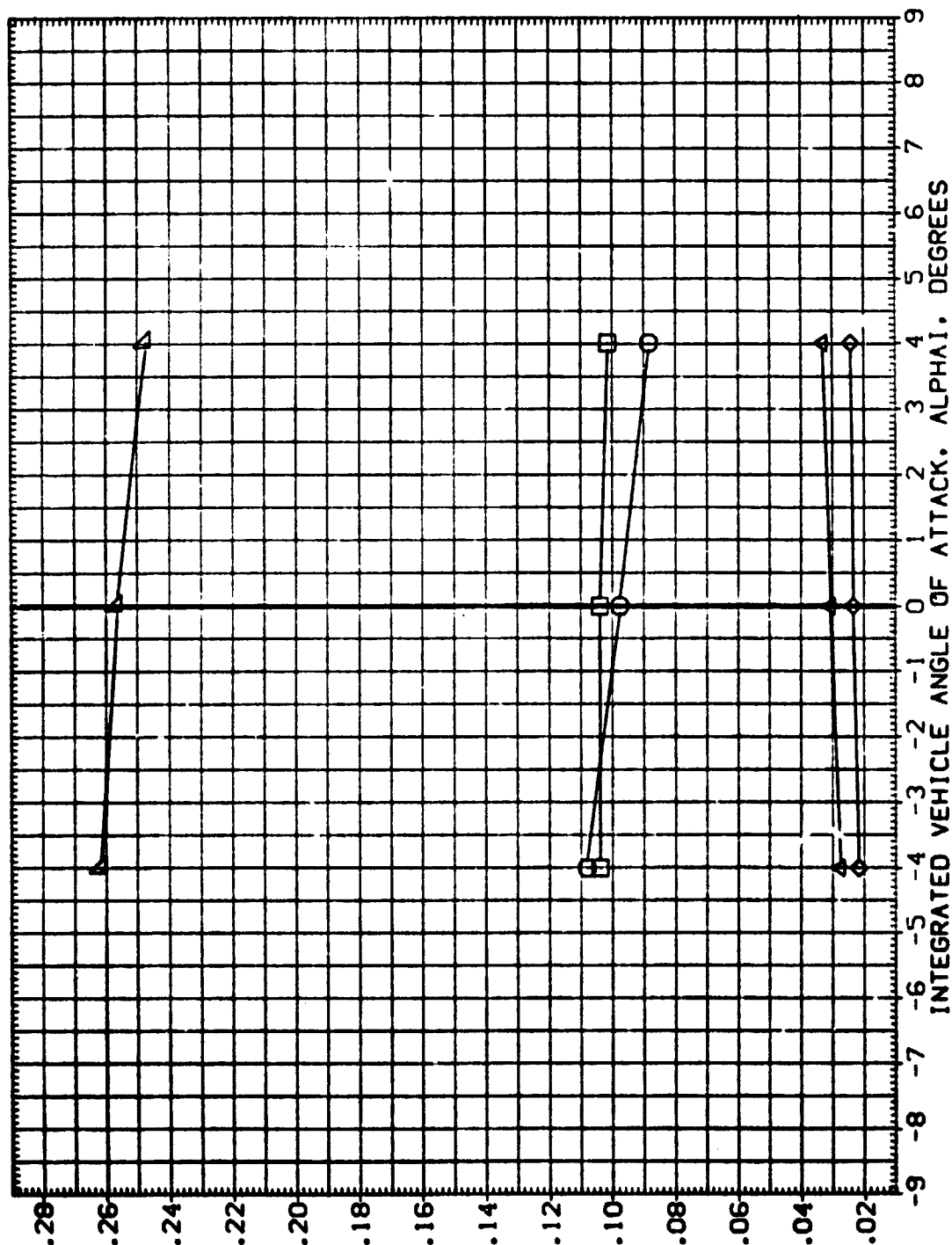


FIG. 13 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=0/0

(D)BETA1 = 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(MET101)	APES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(MET141)	APES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.200	.000	LREF 1297.0000 IN.
(MET141)	APES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.200	.000	BREF 1297.0000 IN.
(MET141)	APES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	.000	.000	2.200	.000	XMRP 976.0000 IN.
(MET141)	APES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.200	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

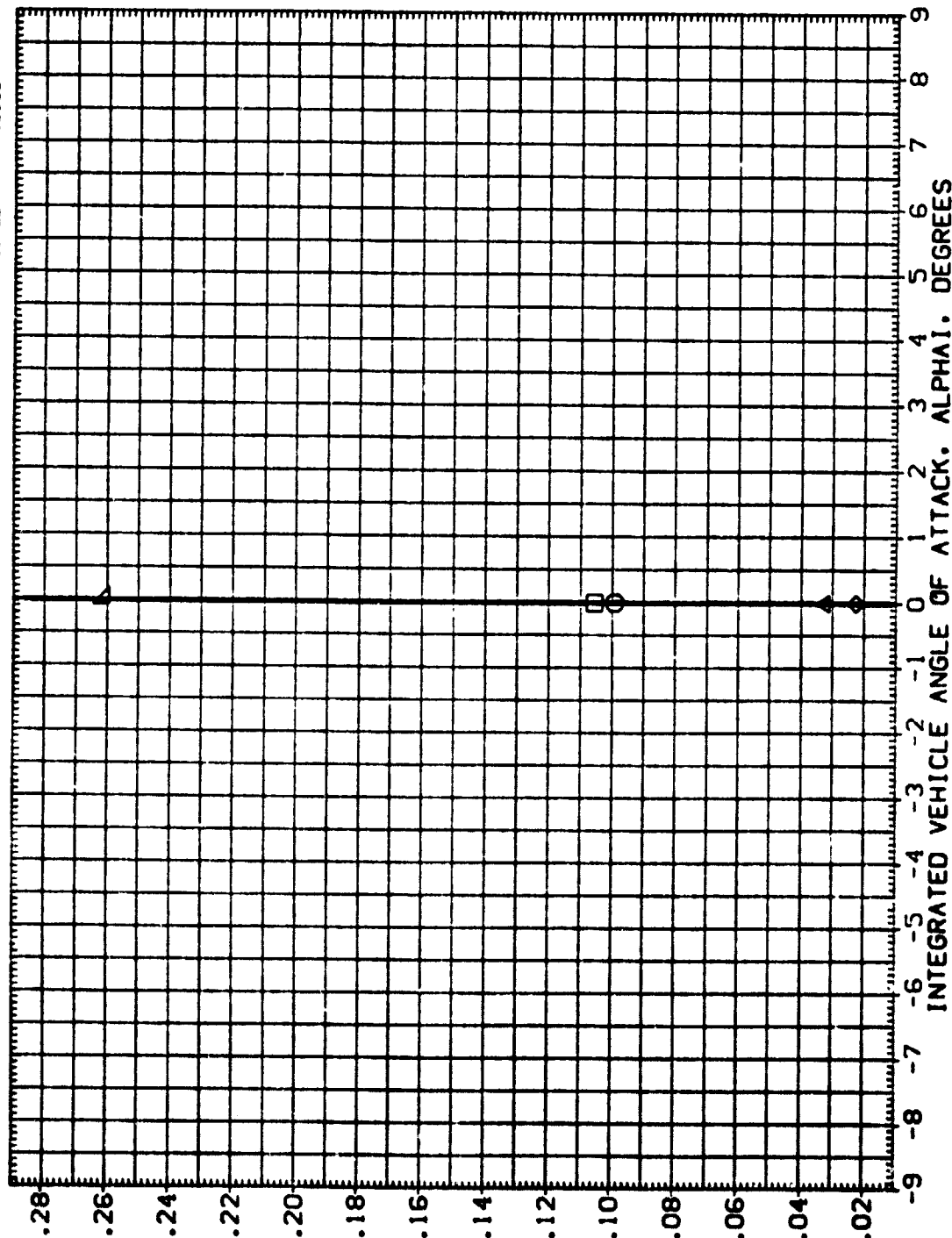


FIG. 13 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=0/0

(E)BETA1 = 6.00

DATA SET SYMBO	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(MET041)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	.000	.000	2.200	.000	SREF 2590.0000 SQ.FT.
(METY41)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.200	.000	LREF 1297.0000 IN.
(METL41)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.200	.000	BREF 1297.0000 IN.
(METR41)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	.000	.000	2.200	.000	XMRP 976.0000 IN.
(METI41)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.200	.000	YMRP .0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

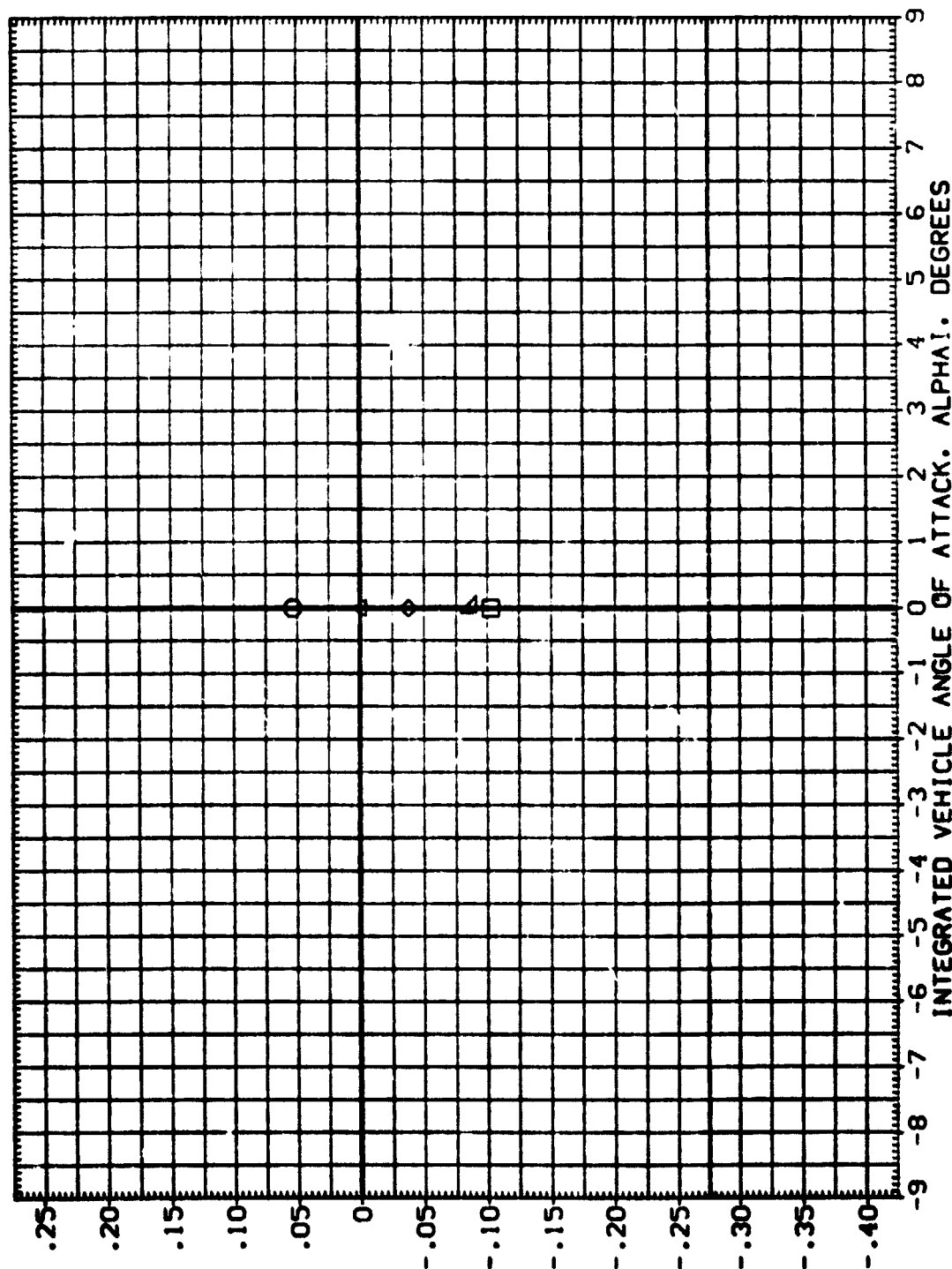


FIG. 13 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=0/0

(A)BET.1 = -6.00

DATA SET SYMBOL CONFIGURATION DESCRIPTION ELV-18 ELV-08 MACH SPOBR. REFERENCE INFORMATION

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBR.	REFERENCE INFORMATION
(MET041)	AMES97-019(IAB1) LVAP ORBITTER-ALL ML SEALED	.000	.000	2.200	.000	SREF 2690.0000 SO.FT.
(MET141)	AMES97-019(IAB1) LVAP TANK - ALL ML SEALED	.000	.000	2.200	.000	LREF 1297.0000 IN.
(MET141)	AMES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	.000	.000	2.200	.000	BREF 1297.0000 IN.
(MET141)	AMES97-019(IAB1) LVAP R-LRB ALL ML SEALED	.000	.000	2.200	.000	XMRP 976.0000 IN. XT
(MET141)	AMES97-019(IAB1) LVAP INT VEH ALL ML SEALED	.000	.000	2.200	.000	ZMRP 400.0000 IN. VT
						SCALE .0300

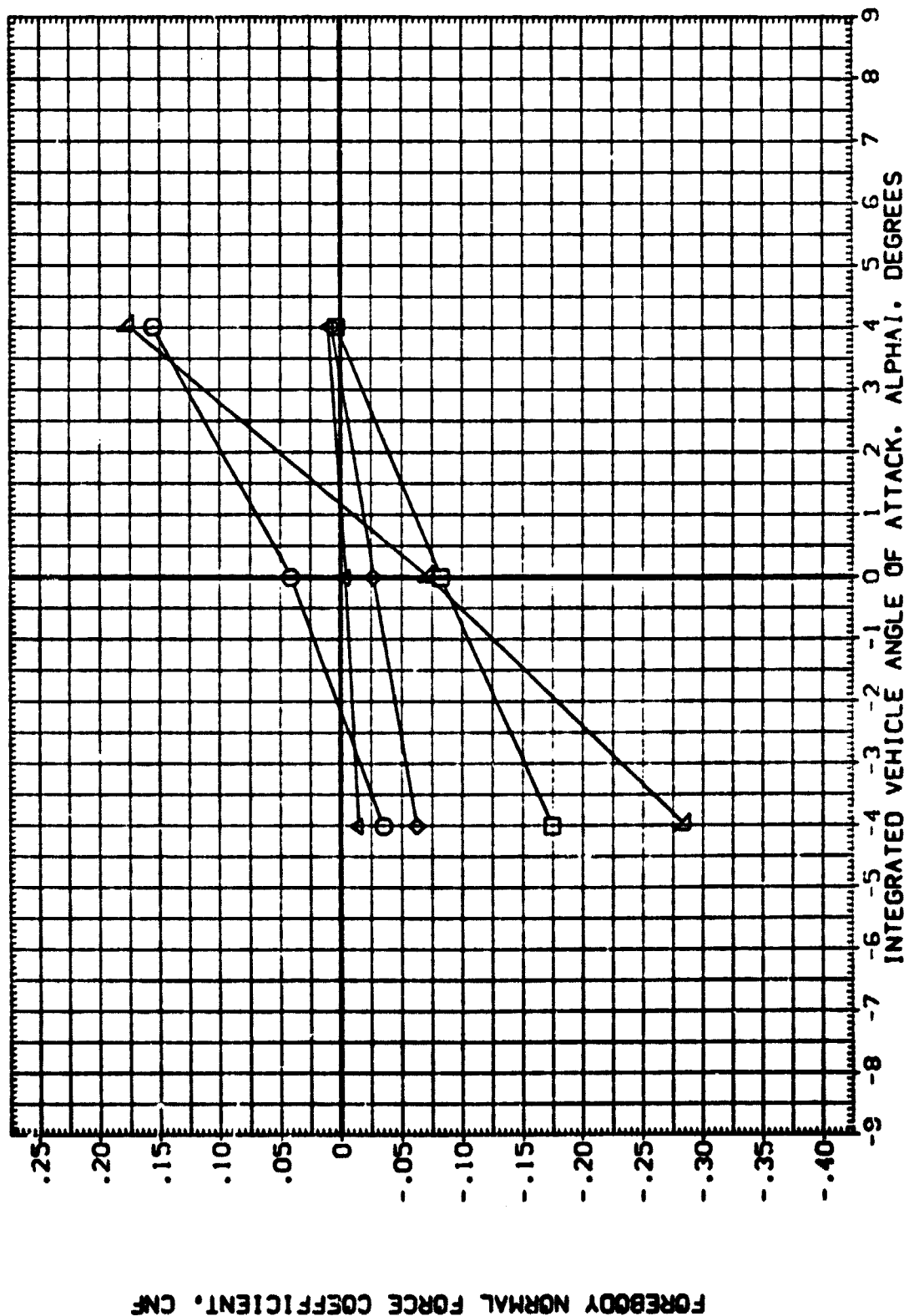


FIG. 13 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=0/0

(B)BETA1 = -4.00

DATA SET SYMBOL: (NET141) (NET141) (NET141) (NET141)

CONFIGURATION DESCRIPTION: AMESB7-01SK1AB1) LVAP ORBITER-ALL HL SEALED TANK - ALL HL SEALED L-SRB - ALL HL SEALED R-LRB - ALL HL SEALED AMESB7-01SK1AB1) LVAP INT VEH ALL HL SEALED

ELV-18 ELV-08 MACH SPDRK REFERENCE INFORMATION

ELV-18	ELV-08	MACH	SPDRK	SREF	LREF	BREF	XMRP	YMRP	ZMRP	SCALE
.000	.000	2.200	.000	2690.0000	1297.0000	1297.0000	976.0000	.0000	400.0000	.0300
.000	.000	2.200	.000							
.000	.000	2.200	.000							
.000	.000	2.200	.000							
.000	.000	2.200	.000							

SO.FT. IN. IN. XT IN. YT IN. ZT

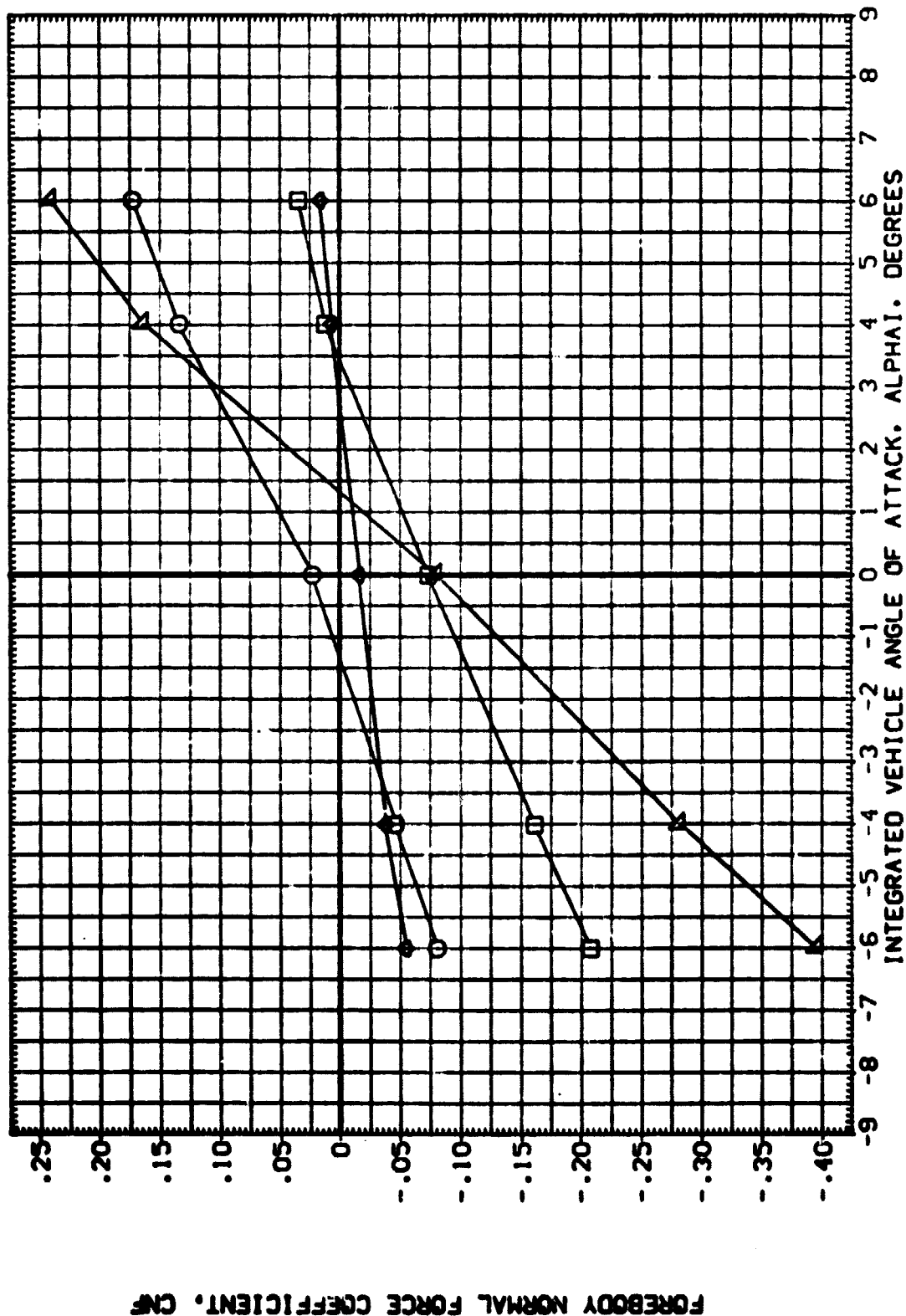
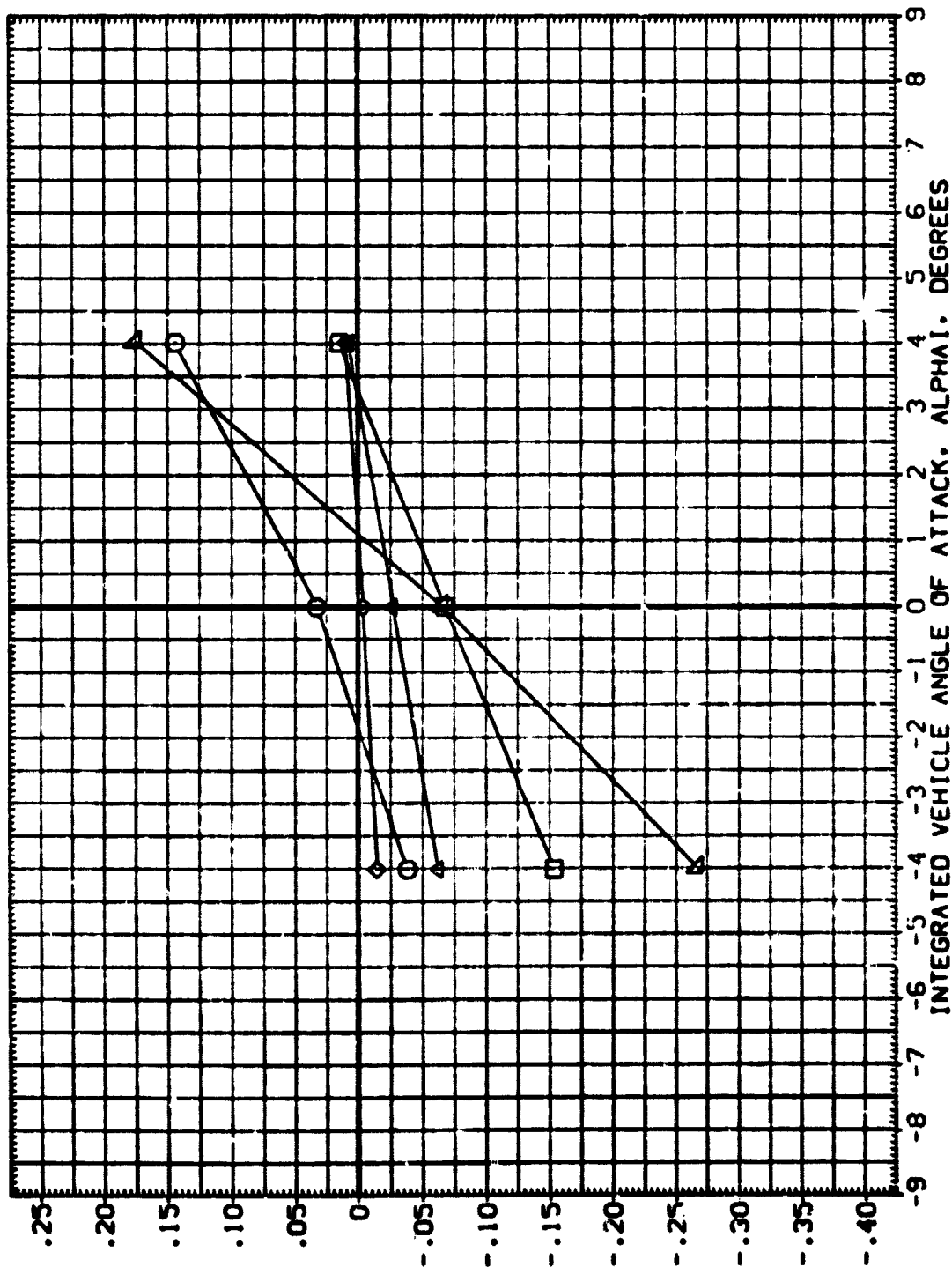


FIG. 13 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=0/0

(C)BET.1 = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(NET041)	AMES97-0191(AB1) LVAP ORBITER-ALL M SEALED	.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(NET141)	AMES97-0191(AB1) LVAP TANK - ALL M SEALED	.000	.000	2.200	.000	LREF 1297.0000 IN.
(NET141)	AMES97-0191(AB1) LVAP L-508 - ALL M SEALED	.000	.000	2.200	.000	BREF 1297.0000 IN.
(NET141)	AMES97-0191(AB1) LVAP R-LPB - ALL M SEALED	.000	.000	2.200	.000	XMRP 976.0000 IN. XT
(NET141)	AMES97-0191(AB1) LVAP INT VEM ALL M SEALED	.000	.000	2.200	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

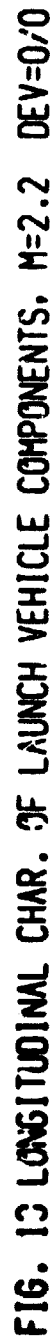


FOREBODY NORMAL FORCE COEFFICIENT, CNF

FIG. 13 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=0/0

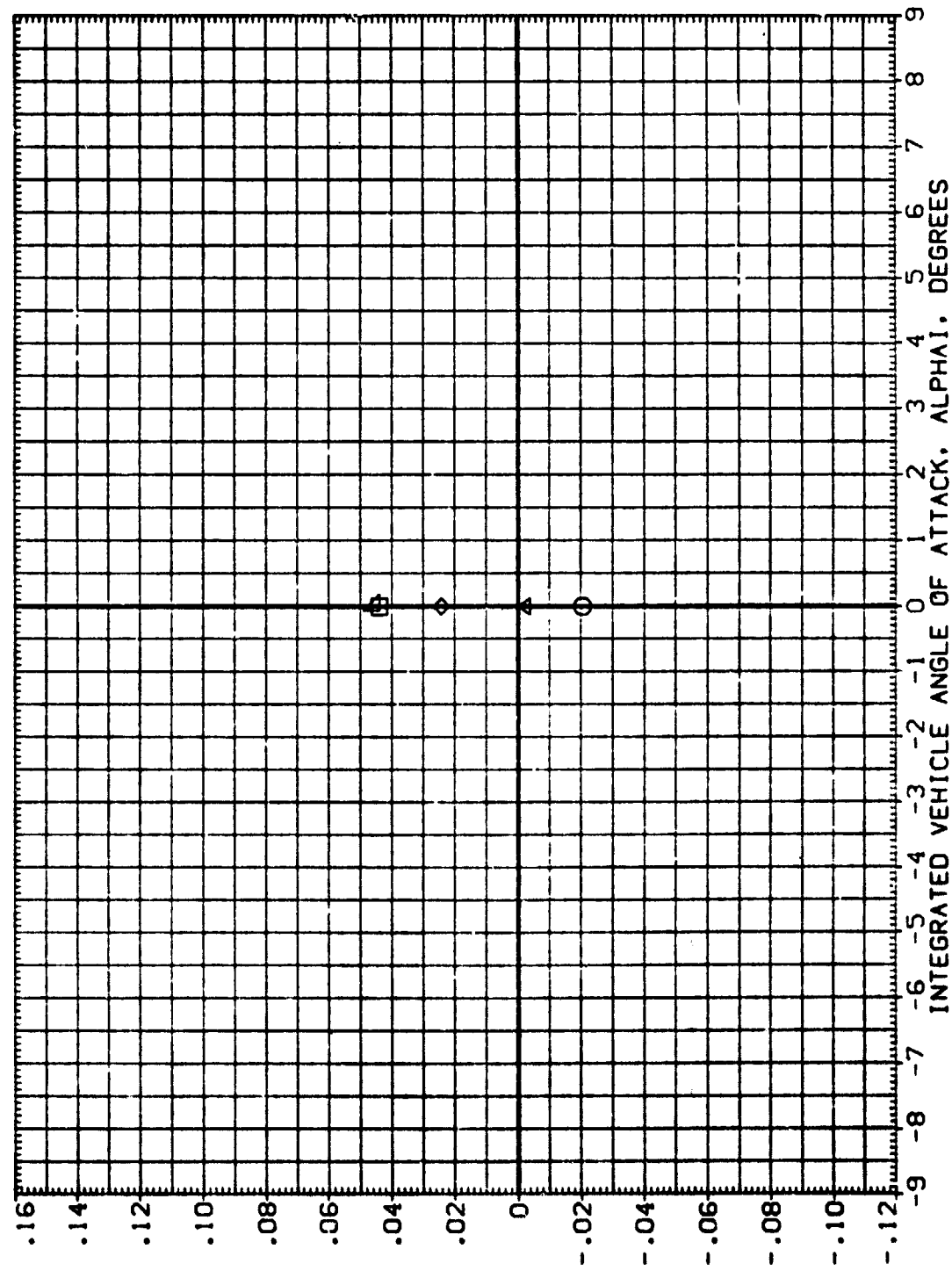
(0)BET.1 = 4.00

FOREBODY NORMAL FORCE COEFFICIENT, CNF



PAGE

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(MET041)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(MET141)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.200	.000	LREF 1297.0000 IN.
(METL41)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.200	.000	BREF 1297.0000 IN.
(METR41)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	.000	.000	2.200	.000	XMRP 976.0000 IN.
(METI41)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.200	.000	YMRP .0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300



FOREBODY PITCHING MOMENT COEFFICIENT, C_{MP}

FIG. 13 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=0/0

(A)BETA1 = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-19	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(MET041)	AWES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(MET141)	AWES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.200	.000	LREF 1297.0000 IN.
(METL41)	AWES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.200	.000	BREF 1297.0000 IN.
(METR41)	AWES97-019(IAB1) LVAP R-LRB ALL HL SEALED	.000	.000	2.200	.000	XMRP 976.0000 IN. XT
(METI41)	AWES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.200	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

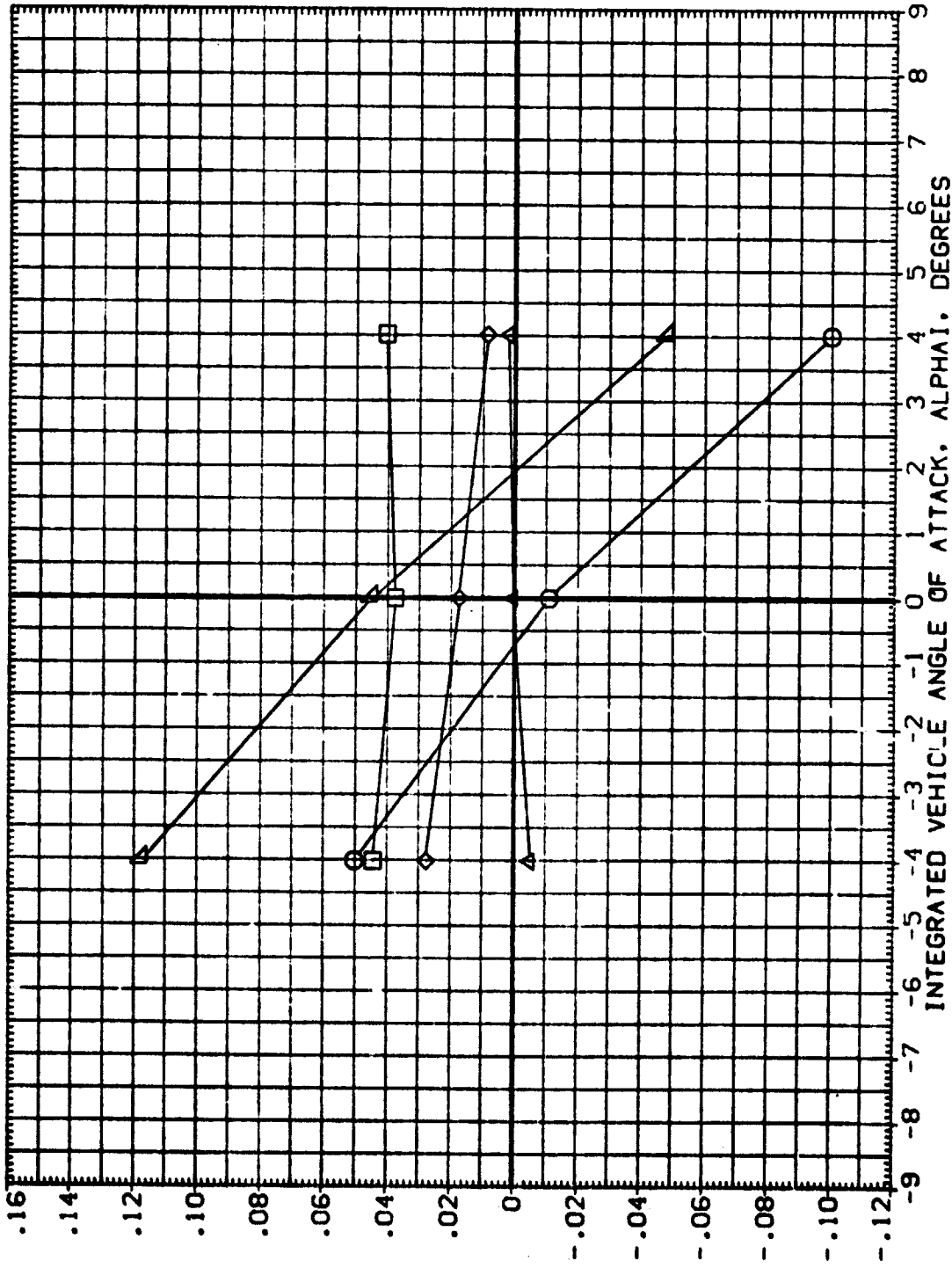
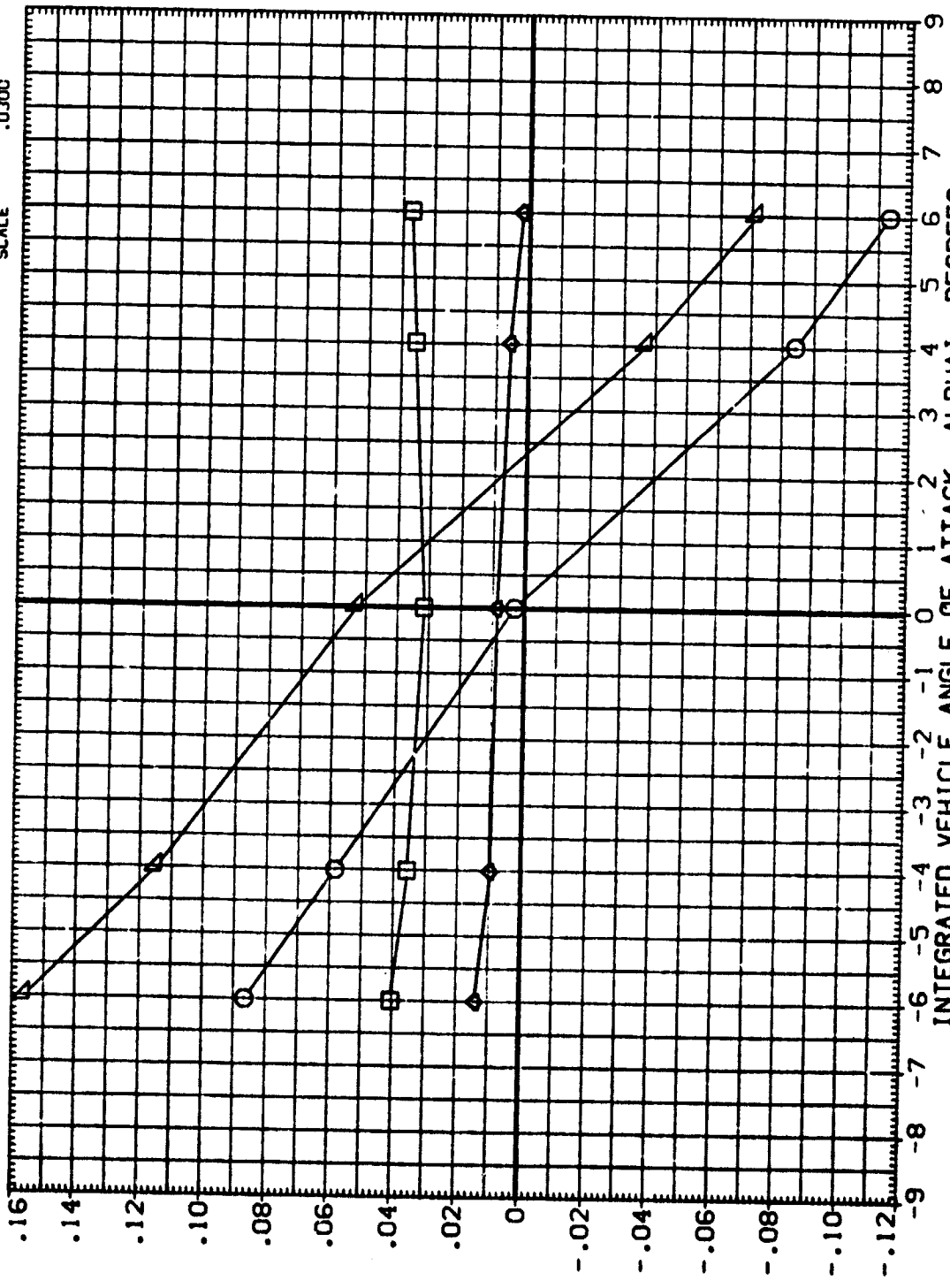


FIG. 13 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=0/0

(B)BET 1 = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(MET041)	AMES97-019(IAB1) LVAP ORBITTER-ALL HL SEALED	.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(MET141)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.200	.000	LREF 1297.0000 IN.
(MET41)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.200	.000	BREF 1297.0000 IN.
(METR41)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	.000	.000	2.200	.000	YMRP 976.0000 IN. XT
(MET141)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.200	.000	ZMRP 400.0000 IN. YT
						SCALE .0300



FOREBODY PITCHING MOMENT COEFFICIENT, CLMF

FIG. 13 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=0/0
(CBETA) = .00

ELV-1B	ELV-08	MACH	SPDBRK	REFERENCE	INFORMATION	SQ. FT.
.000	.000	2.200	.000	SREF	2650	.0000
.000	.000	2.200	.000	LRFF	1	.297
.000	.000	2.200	.000	LRFF	1	.297
.000	.000	2.200	.000	YMRP	976	.0000
.000	.000	2.200	.000	YMRP		.0000
.000	.000	2.200	.000	YMRP		.0000
.000	.000	2.200	.000	YMRP	400	.0300
.000	.000	2.200	.000	SCALE		.0300

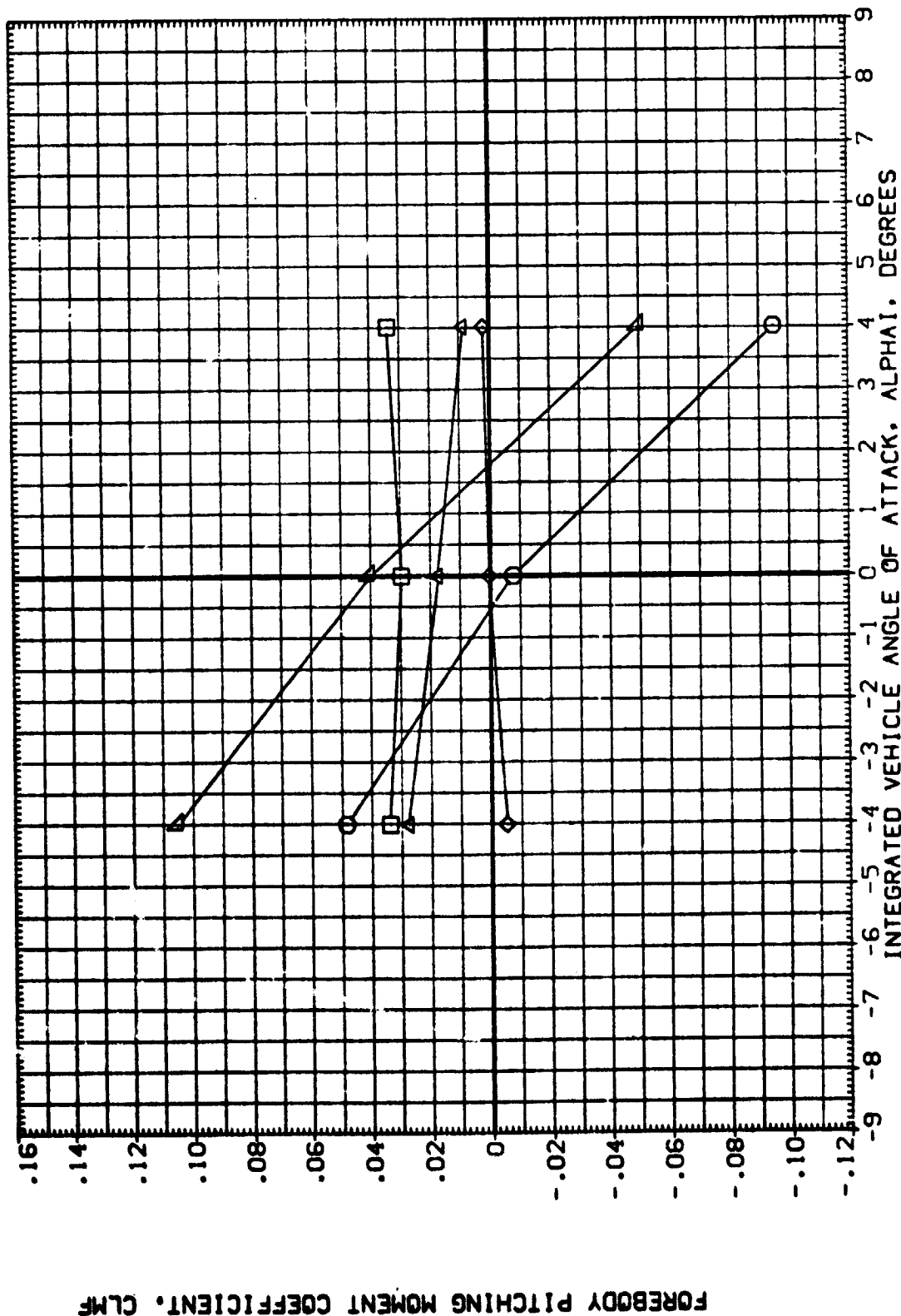


FIG. 13 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=0/0

(O)BET,I = 4.00

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-19	ELV-08	MACH	SPDBRK	REFERENCE INFORMATION
(MET041)	AMES97-019(1A81) LVAP ORBITER-ALL HL SEALED	.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(MET141)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	.000	.000	2.200	.000	LREF 1297.0000 IN.
(METL41)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	.000	.000	2.200	.000	BREF 1297.0000 IN.
(METR41)	AMES97-019(1A81) LVAP R-LRB - ALL HL SEALED	.000	.000	2.200	.000	YMRP 976.0000 IN.
(MET141)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	.000	.000	2.200	.000	ZMRP 400.0000 IN.
						SCALE .0300

FOREBODY PITCHING MOMENT COEFFICIENT, CLMF

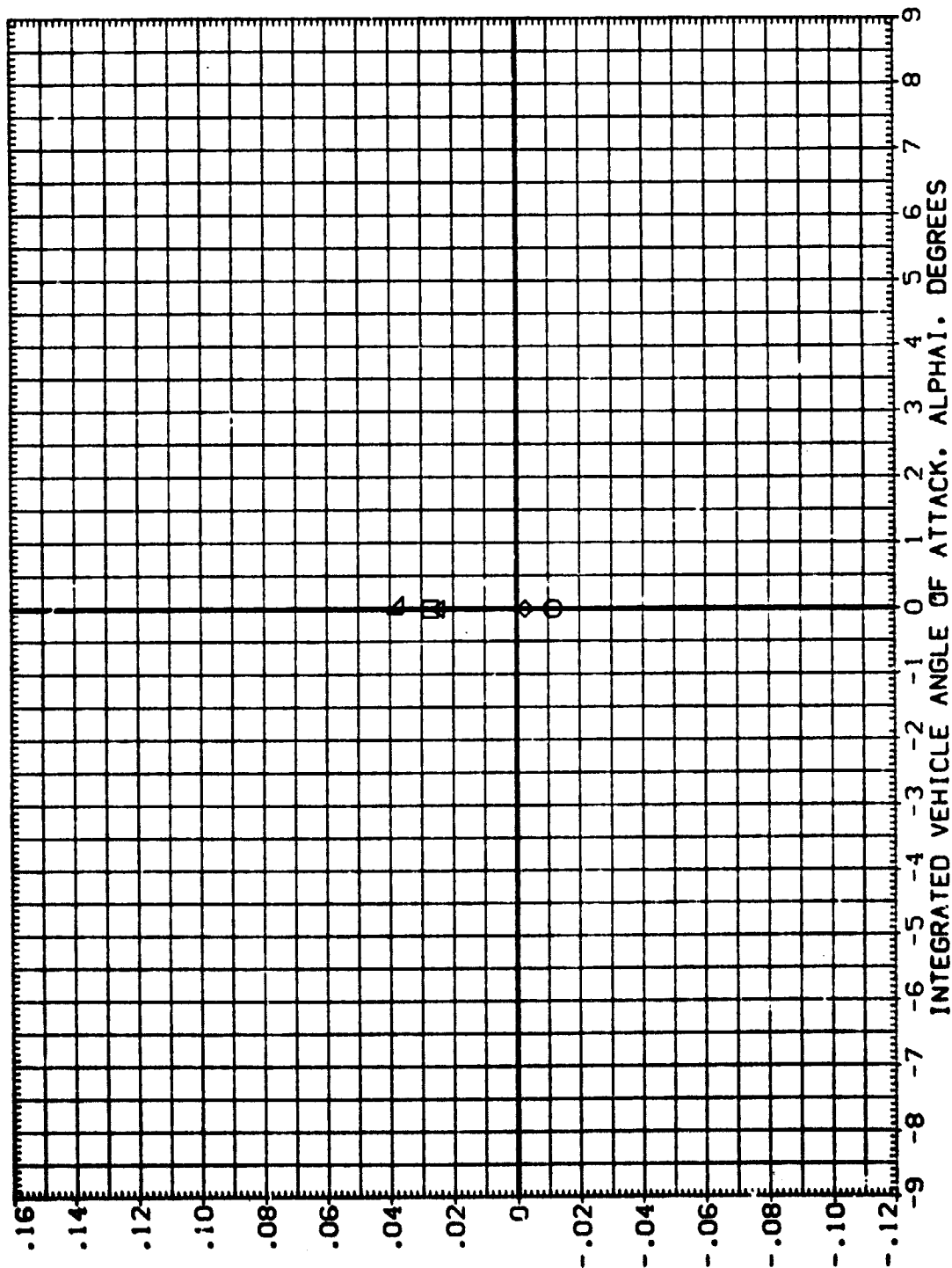


FIG. 13 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=0/0

(E)BET.1 = 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(MET041)	ANE597-019(IAB1) LVAP DRBITTER-ALL HL SEALED	.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(MET141)	ANE597-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.200	.000	LREF 1297.0000 IN.
(MET141)	ANE597-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.200	.000	SRREF 1297.0000 IN.
(MET041)	ANE597-019(IAB1) LVAP R-1RB ALL HL SEALED	.000	.000	2.200	.000	XMRP 976.0000 IN. XT
(MET141)	ANE597-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.200	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

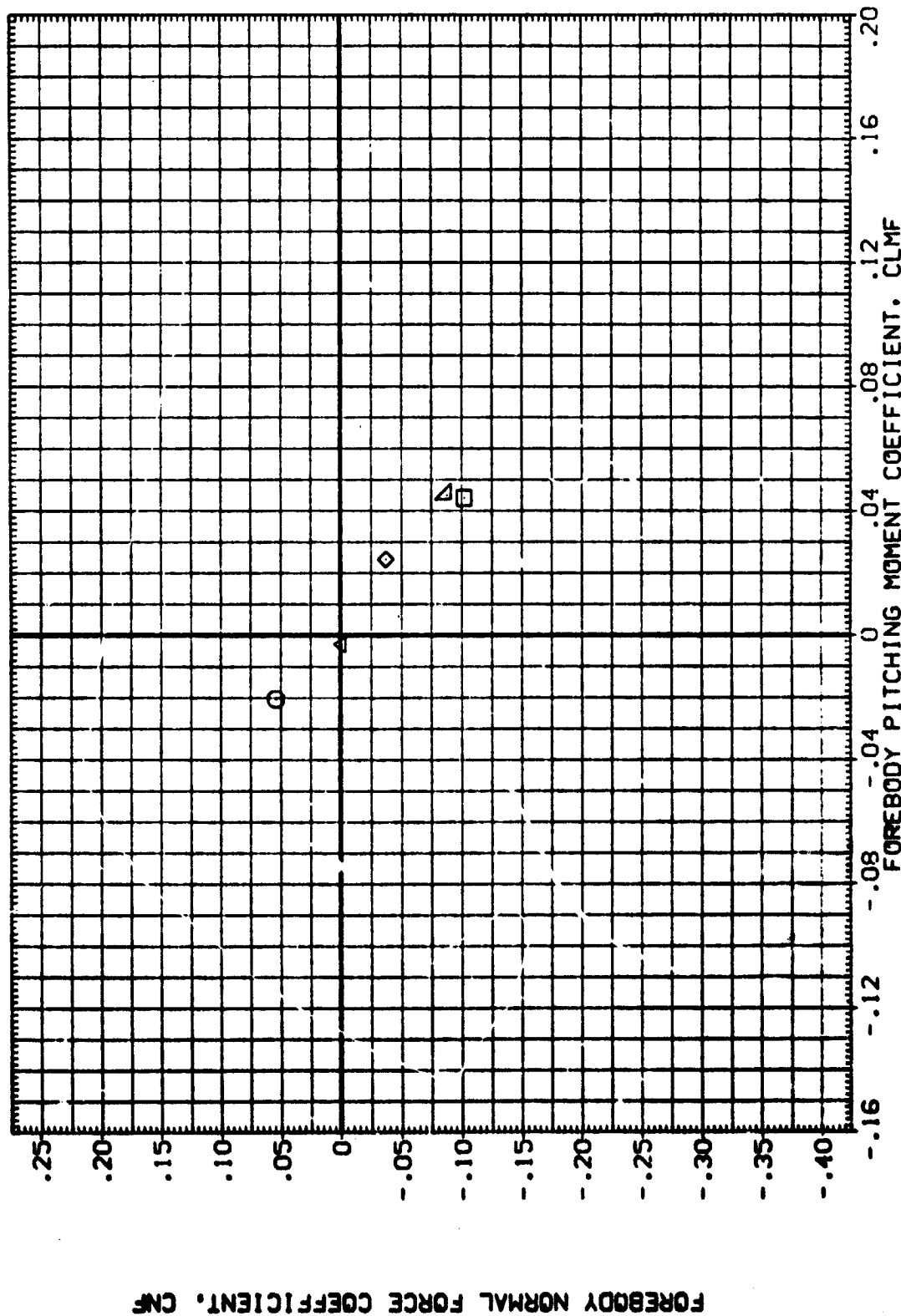


FIG. 13 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=0/0

(A)BET.1 = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(MET041)	APES97-019(IAB1) LVAP CRBITER-ALL HL SEALED	.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(MET141)	APES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.200	.000	LREF 1297.0000 IN.
(MET141)	APES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.200	.000	BREF 1297.0000 IN.
(MET141)	APES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	.000	.000	2.200	.000	XHRP 976.0000 IN.
(MET141)	APES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.200	.000	YHRP 400.0000 IN.
						ZHRP 400.0000 IN.
						SCALE .0300

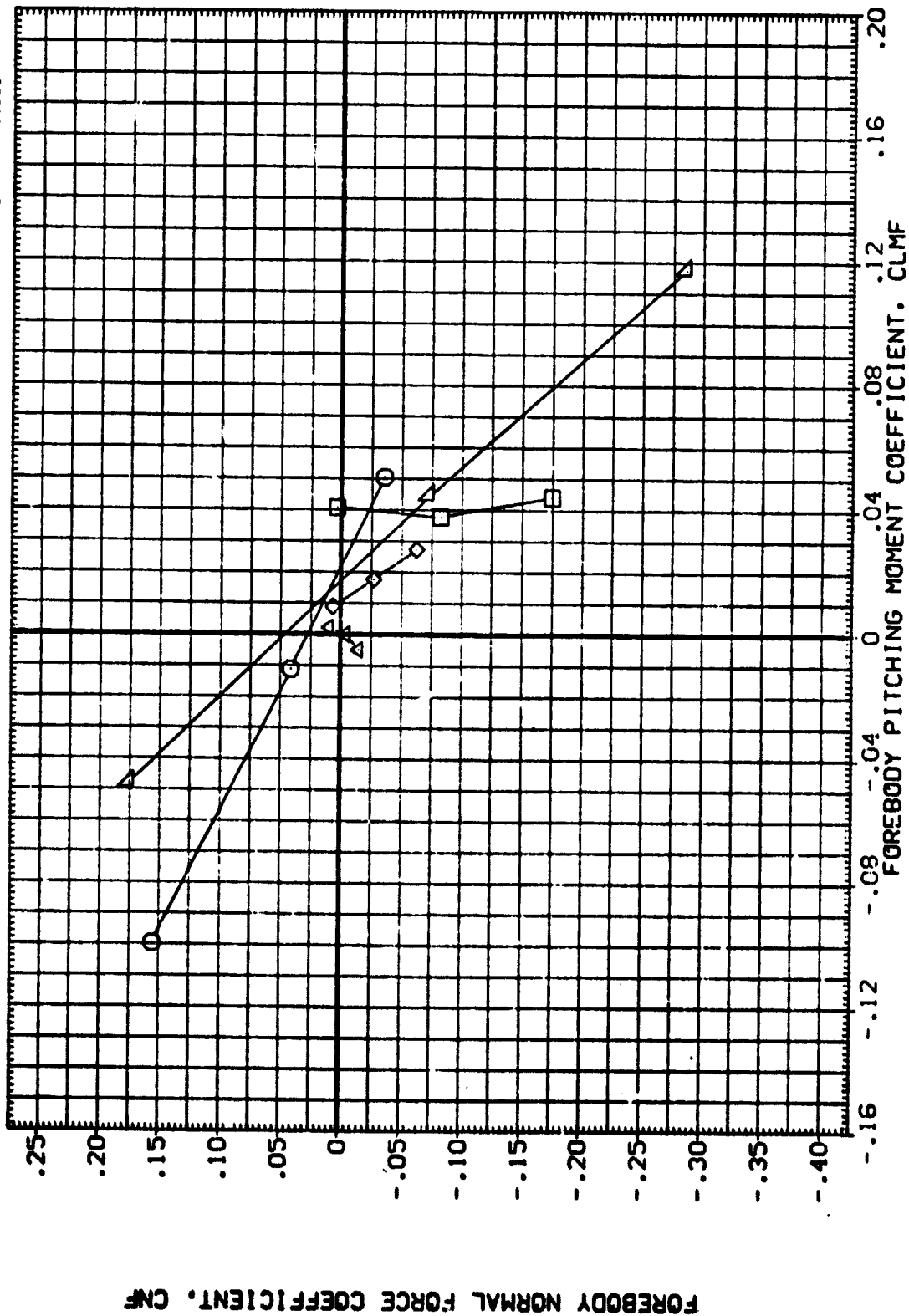


FIG. 13 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=0/0
(B)BET 1 = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(MET041)	AMES57-019C(1A81) LVAP CRBTTER-ALL ML SEALED	.000	.000	2.200	.000	SREF 2690.0000 SO.FT.
(MET141)	AMES57-019C(1A81) LVAP TANK - ALL ML SEALED	.000	.000	2.200	.000	LREF 1297.0000 IN.
(MET141)	AMES57-019C(1A81) LVAP L-SRB - ALL ML SEALED	.000	.000	2.200	.000	BREF 1297.0000 IN.
(MET141)	AMES57-019C(1A81) LVAP R-LRB - ALL ML SEALED	.000	.000	2.200	.000	XMRP 976.0000 IN.
(MET141)	AMES57-019C(1A81) LVAP INT VEH ALL ML SEALED	.000	.000	2.200	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

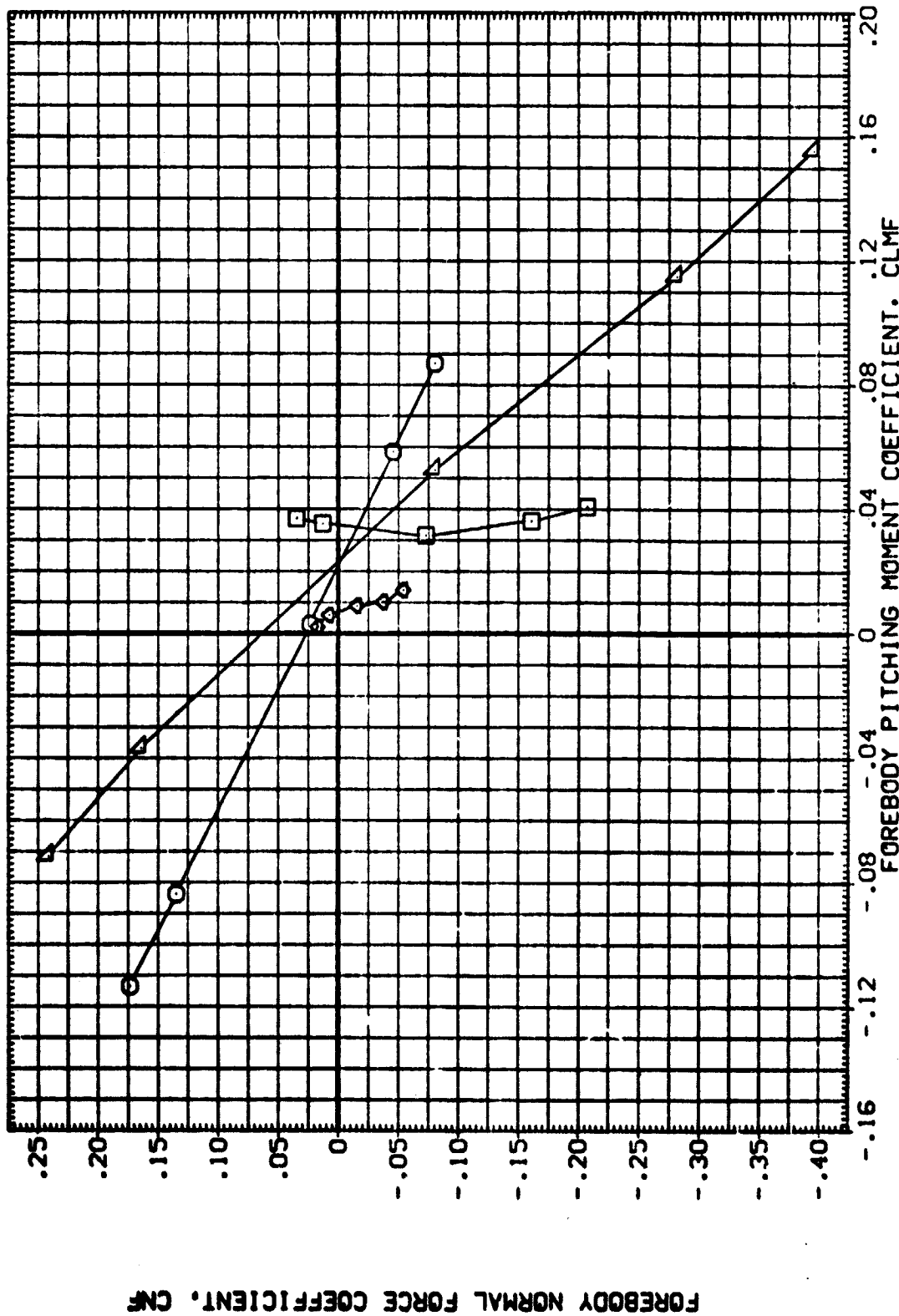


FIG. 13 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=0/0

(C)BET.1 = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(MET01)	AMES97-019(1A81) LVAP ORBITTER-ALL HL SEALED	.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(MET14)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	.000	.000	2.200	.000	LREF 1297.0000 IN.
(MET14)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	.000	.000	2.200	.000	BREF 1297.0000 IN.
(MET14)	AMES97-019(1A81) LVAP R-LRB ALL HL SEALED	.000	.000	2.200	.000	YMRP 976.0000 IN.
(MET14)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	.000	.000	2.200	.000	YMRP 976.0000 IN.
(MET14)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	.000	.000	2.200	.000	ZMRP 400.0000 IN.
						SCALE .0300

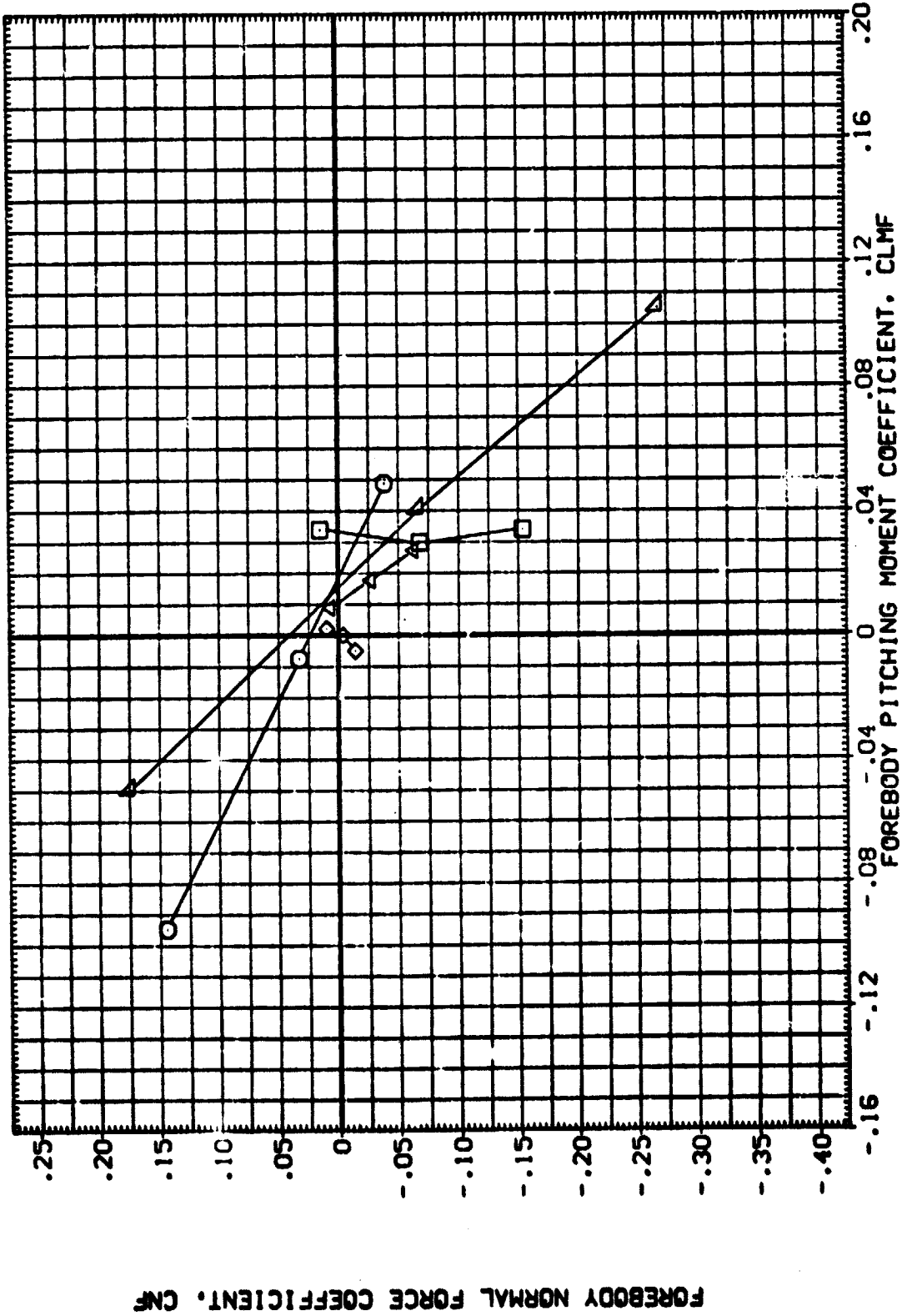


FIG. 13 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=0/0

FOREBODY NORMAL FORCE COEFFICIENT, CNF

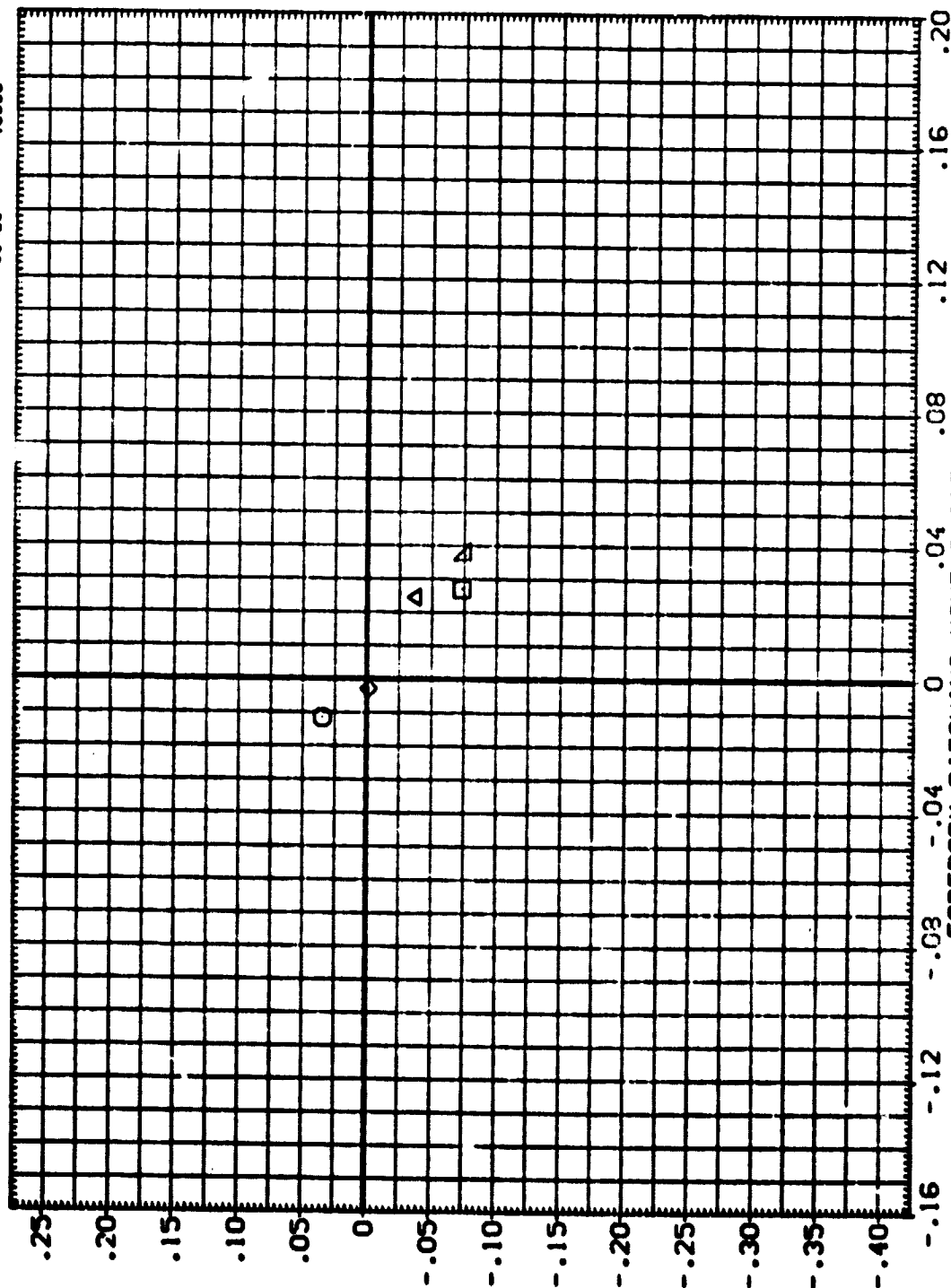


FIG. 13 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=0/0
(C)BET.1 = 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRBK	REFERENCE INFORMATION
(ME1045)	AMES97-019(1481) LVAP CRB1TER-ALL ML SEALED	8.000	.000	2.200	.000	SREF 2650.0000 SO.FT.
(ME1145)	AMES97-019(1481) LVAP TANK - ALL ML SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(ME1145)	AMES97-019(1481) LVAP L-SP8 - ALL ML SEALED	8.000	.000	2.200	.000	BREF 1297.0000 IN.
(ME1145)	AMES97-019(1481) LVAP 8-LUB - ALL ML SEALED	8.000	.000	2.200	.000	YMRP 976.0000 IN. XT
(ME1145)	AMES97-019(1481) LVAP 30 VEM ALL ML SEALED	8.000	.000	2.200	.000	ZMRP 400.0000 IN. YI
						SCALE .0300

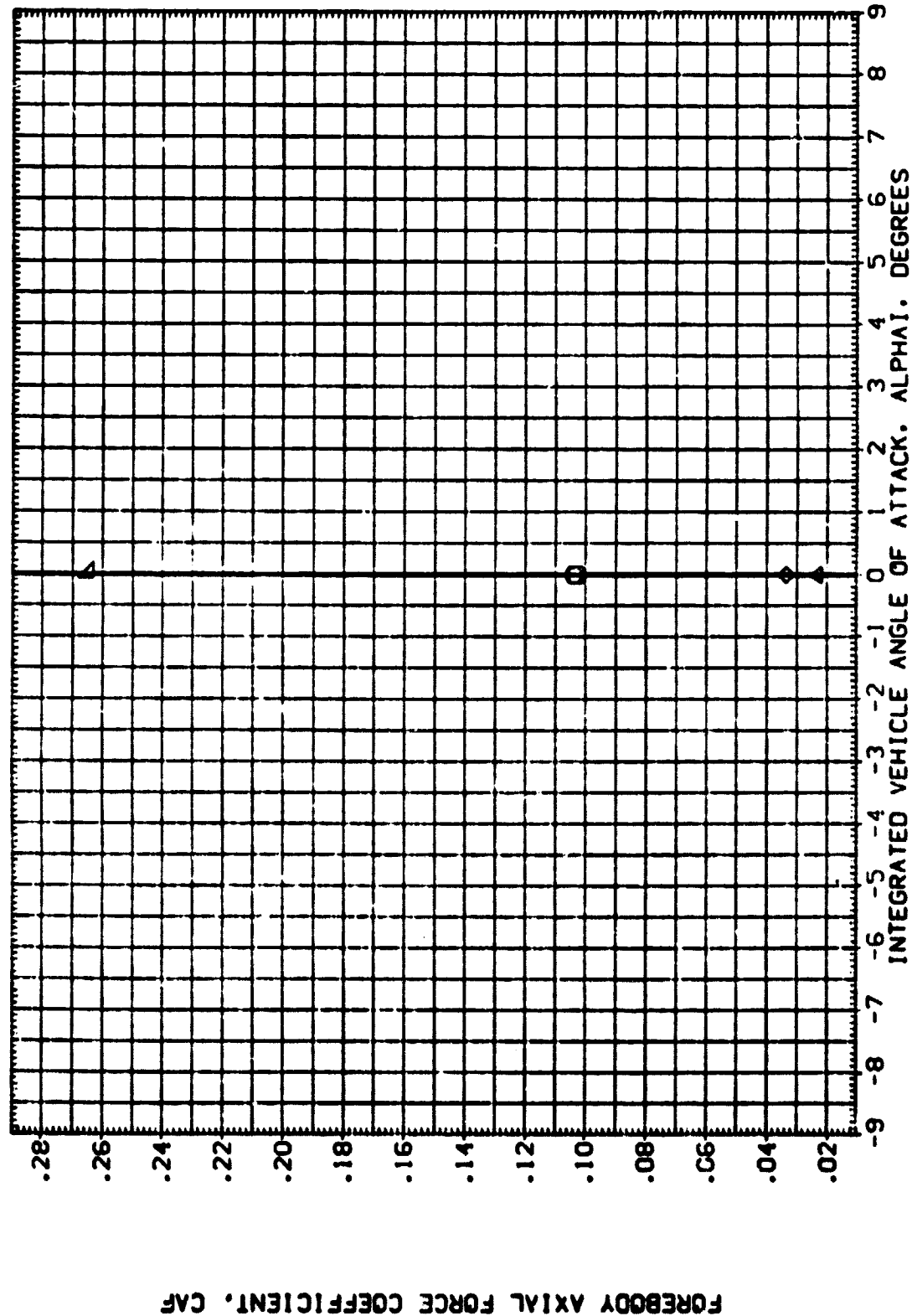


FIG. 14 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0

(A)BET.1 = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-19	ELV-20	MACH	SPORNR	REFERENCE INFORMATION
(MET045)	ANE597-019(148) L-VAP C-301TER-ALL MC SEALED	8.000	.000	.000	2.200	.000	STEP 2590.0000 SQ.FT.
(MET145)	ANE597-019(148) L-VAP C-301TER-ALL MC SEALED	8.000	.000	.000	2.200	.000	LINEF 1297.0000 IN.
(MET145)	ANE597-019(148) L-VAP C-301TER-ALL MC SEALED	8.000	.000	.000	2.200	.000	BREF 1297.0000 IN.
(MET145)	ANE597-019(148) L-VAP C-301TER-ALL MC SEALED	8.000	.000	.000	2.200	.000	XMRP 976.0000 IN. XT
(MET145)	ANE597-019(148) L-VAP C-301TER-ALL MC SEALED	8.000	.000	.000	2.200	.000	ZMRP 400.0000 IN. VT
							SCALE .0300

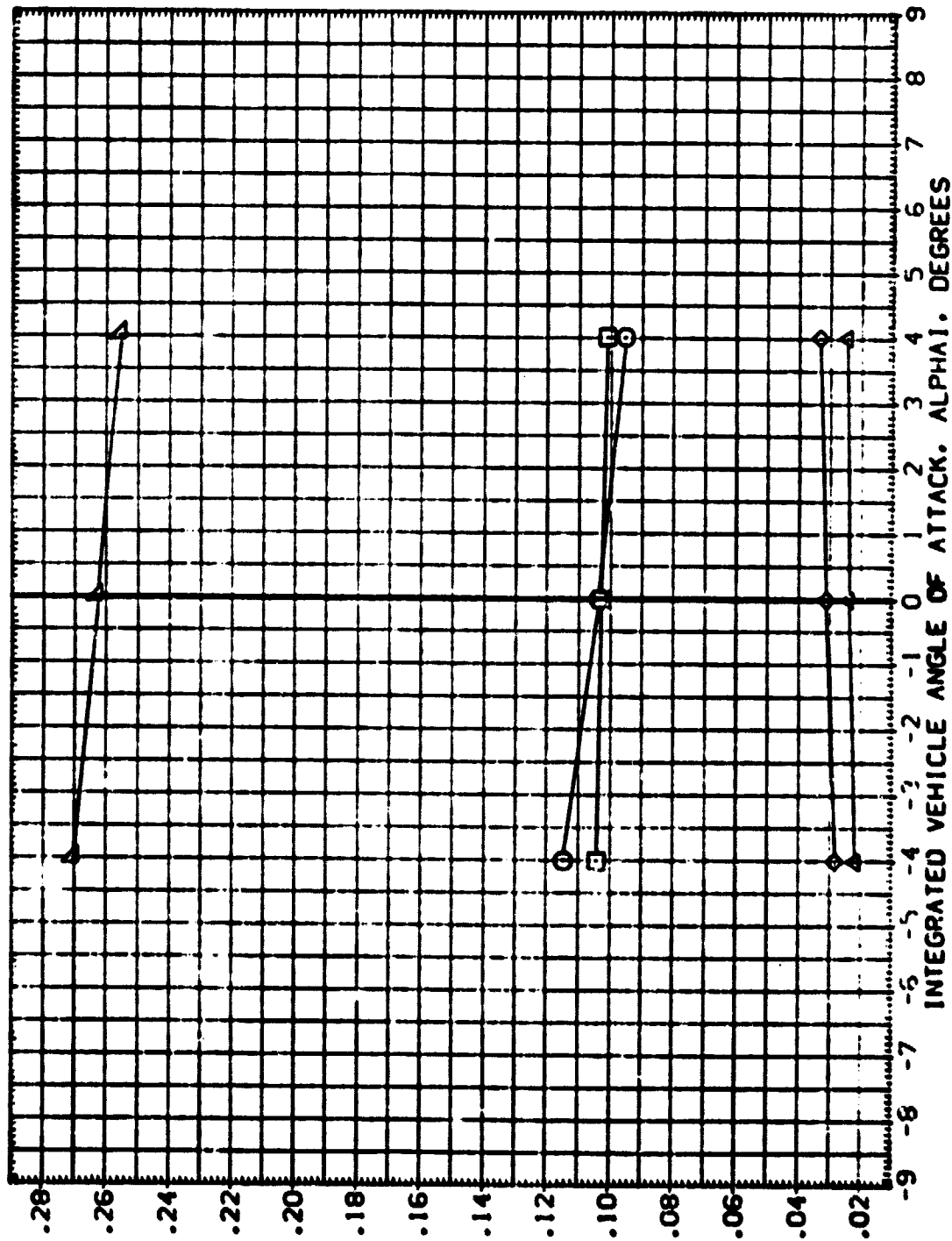


FIG. 14 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0

(A)BETAI = -4.00

FOREBODY AXIAL FORCE COEFFICIENT, CAF

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(NET045)	AME597-019(1AB1) LVAP	8.000	.000	2.200	.000	SREF 2690.0000 SO.FT.
(NET142)	AME597-019(1AB1) LVAP TANK - ALL ML SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(NET145)	AME597-019(1AB1) LVAP L-VRB - ALL ML SEALED	8.000	.000	2.200	.000	BREF 1297.0000 IN.
(NET145)	AME597-019(1AB1) LVAP 9-LVRB ALL ML SEALED	8.000	.000	2.200	.000	XVRP 976.0000 IN. XT
(NET145)	AME597-019(1AB1) LVAP INT NEW ALL ML SEALED	8.000	.000	2.200	.000	YVRP 400.0000 IN. YT
						ZVRP .0300
						SCALE

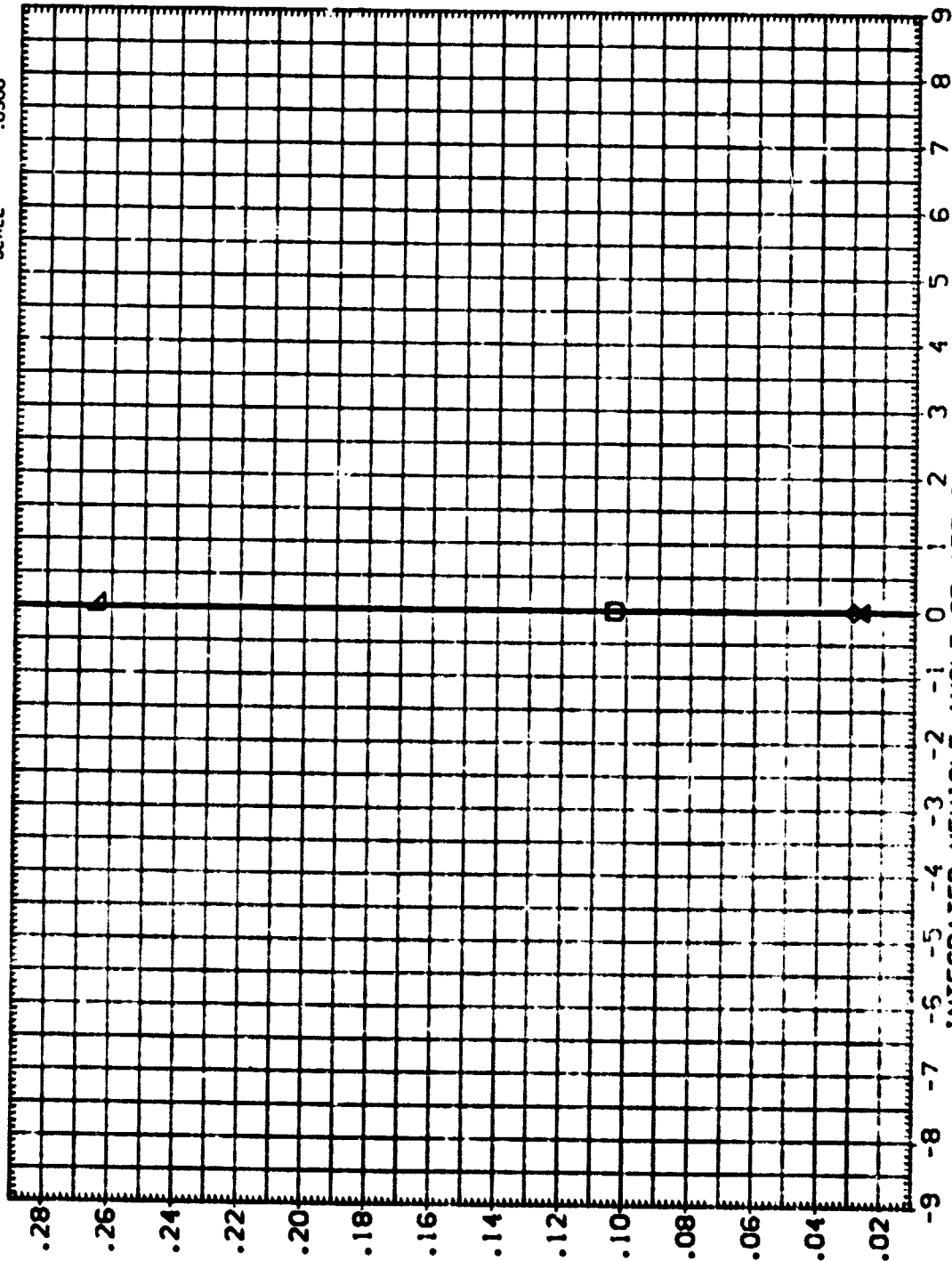


FIG. 14 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0

(C)BET.1 = -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(MET045)	ANE597-0191(IAB1) LVAP ORBITER-ALL ML SEALED	8.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(MET045)	ANE597-0191(IAB1) LVAP TASK - ALL ML SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(MET045)	ANE597-0191(IAB1) LVAP L-SRB - ALL ML SEALED	8.000	.000	2.200	.000	BREF 1297.0000 IN.
(MET045)	ANE597-0191(IAB1) LVAP R-LRB - ALL ML SEALED	8.000	.000	2.200	.000	AMRP 976.0000 IN. XT
(MET045)	ANE597-0191(IAB1) LVAP INT VEH ALL ML SEALED	8.000	.000	2.200	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

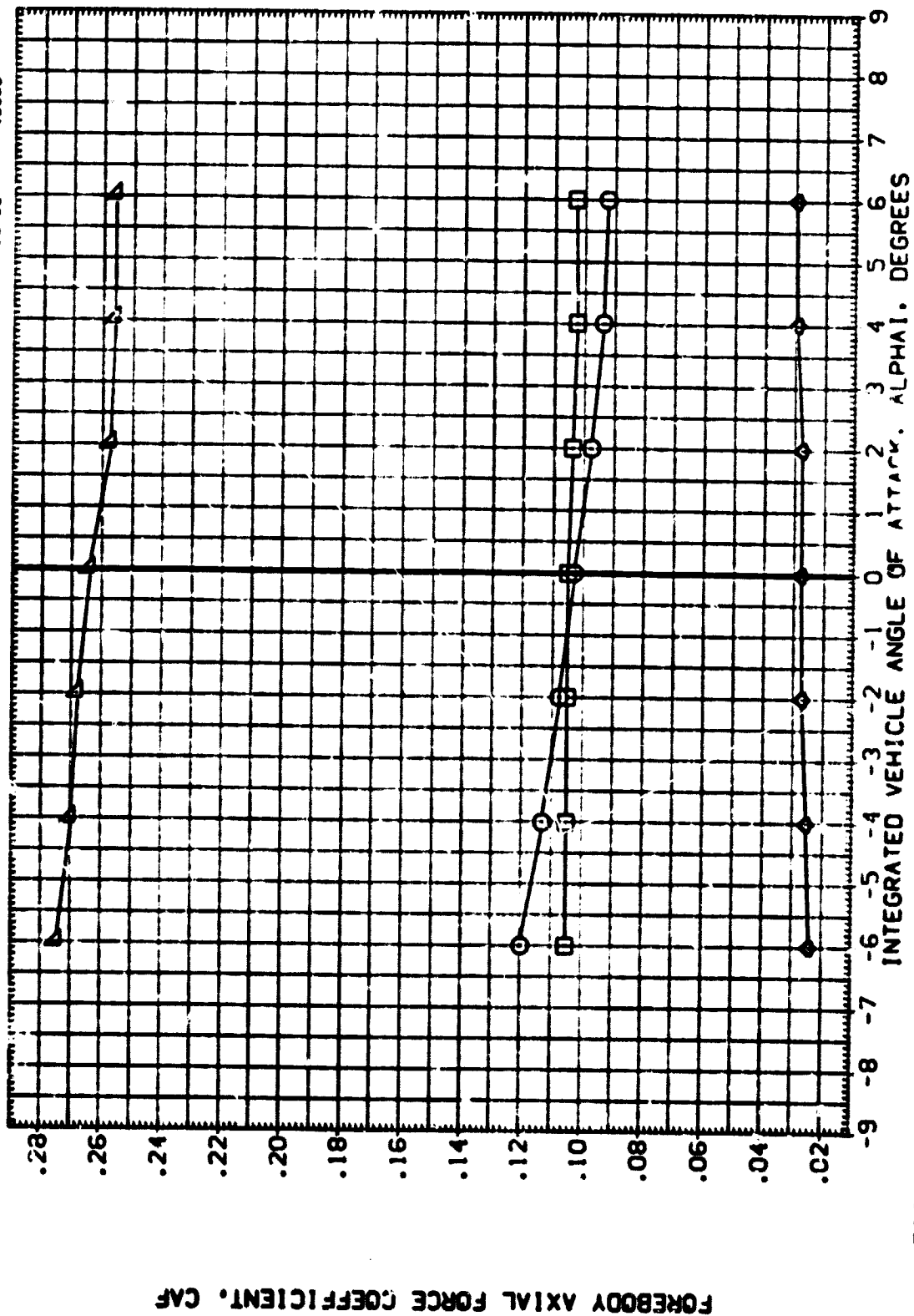


FIG. 14 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0

(O)BET.1 = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-15	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(MET045)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	.000	2.200	.000	SREF 2690.0000 SO.FT.
(MET145)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(MET145)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.200	.000	BREF 1297.0000 IN.
(MET145)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	.000	2.200	.000	XMRP 976.0000 IN. XT
(MET145)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.200	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

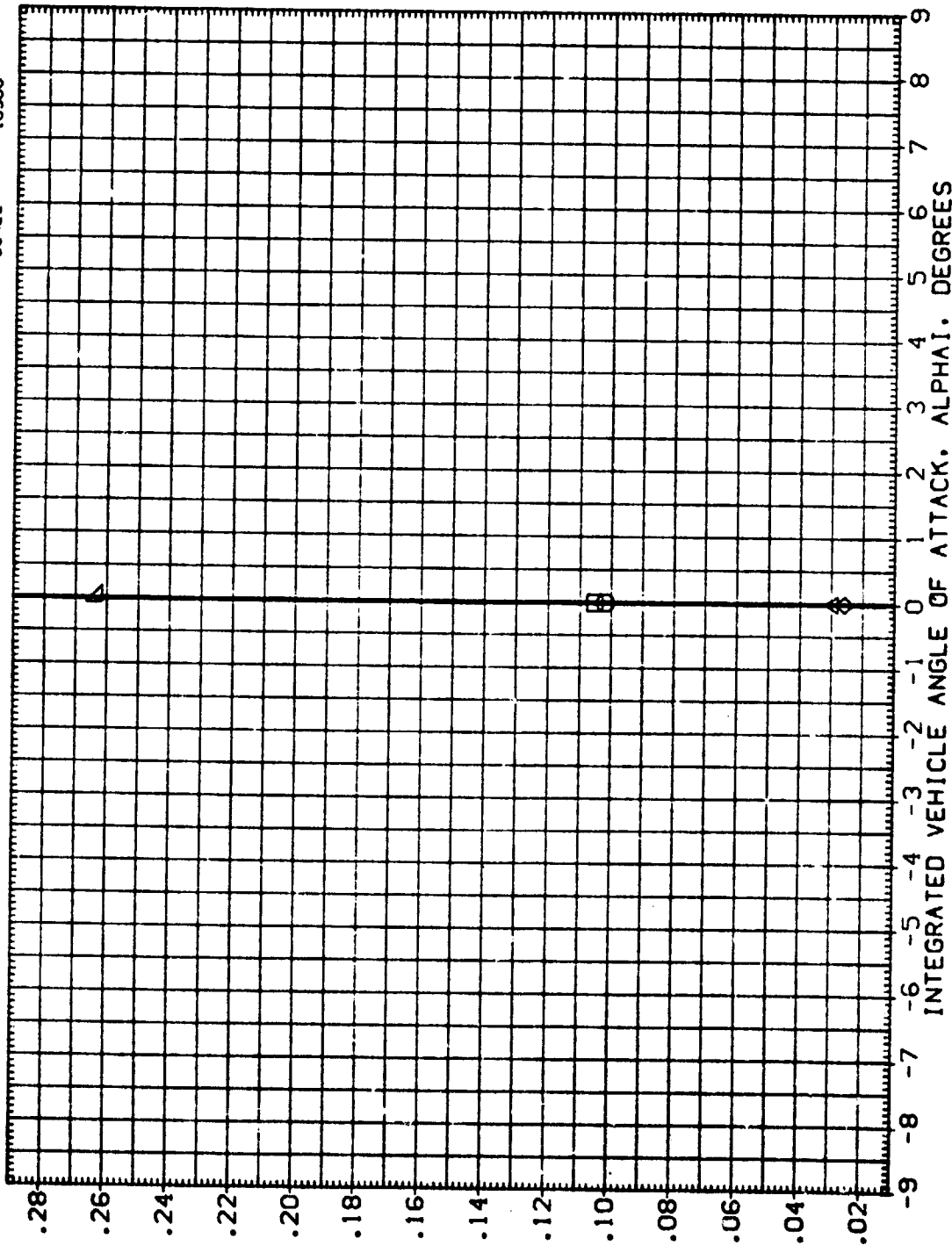


FIG. 14 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0
 (E)BET.1 = 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(MET045)	APES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(MET145)	APES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(MET145)	APES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.200	.000	BREF 1297.0000 IN.
(MET145)	APES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	.000	2.200	.000	XMRP 976.0000 IN.
(MET145)	APES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.200	.000	YMRP 400.0000 IN.
						SCALE .0300

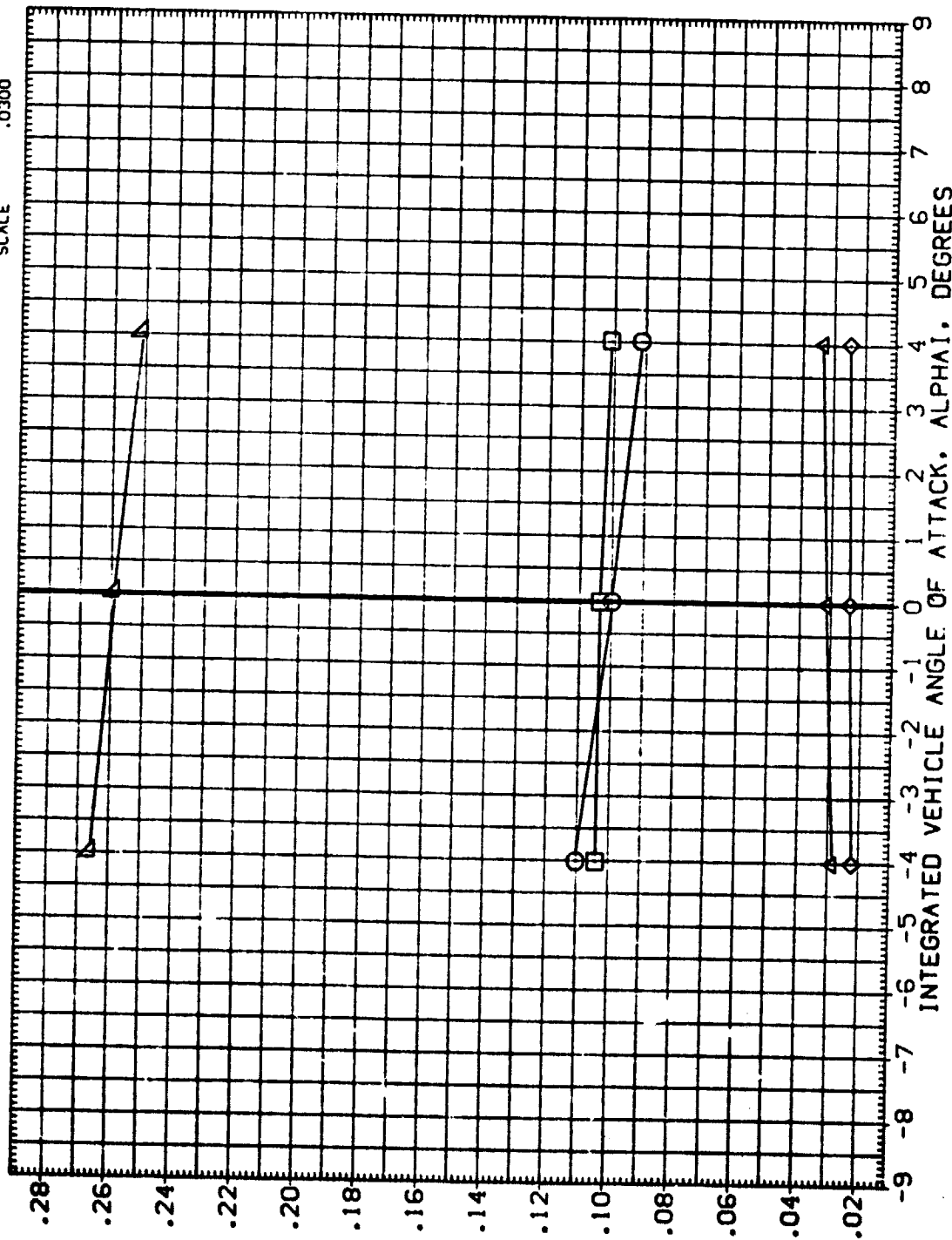


FIG. 14 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0

(F)BET.1 = 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(METR45)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(METR45)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(METR45)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.200	.000	BREF 1297.0000 IN.
(METR45)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	.000	2.200	.000	XMRP 976.0000 IN.
(METR45)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.200	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

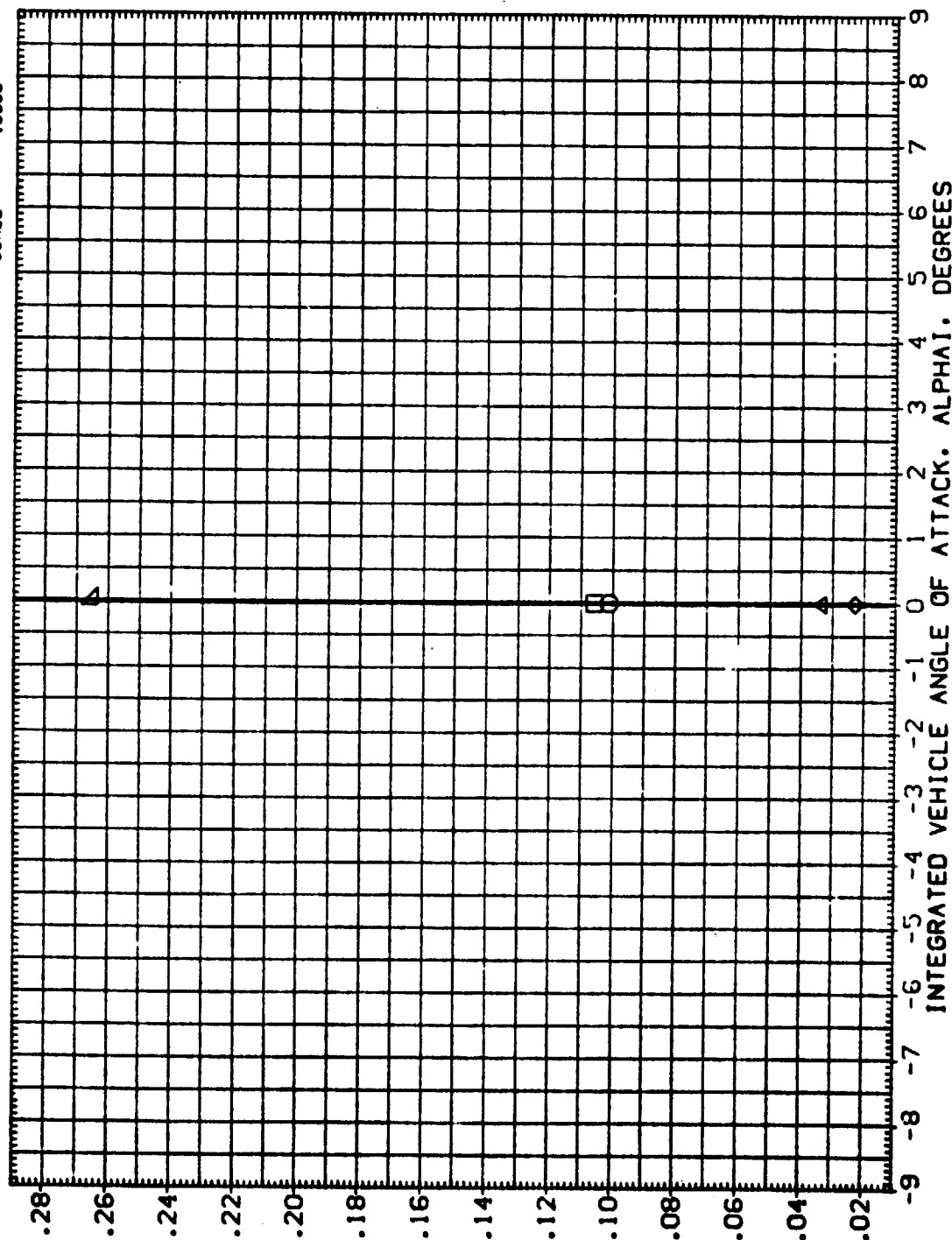


FIG. 14 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0

(G)BET.1 = 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(MET045)	AMES97-019(1A81) LVAP	8.000	.000	2.200	.000	SREF 2690.000
(MET145)	AMES97-019(1A81) LVAP	8.000	.000	2.200	.000	LREF 1297.000
(MET145)	AMES97-019(1A81) LVAP	8.000	.000	2.200	.000	BREF 1297.000
(MET145)	AMES97-019(1A81) LVAP	8.000	.000	2.200	.000	XMRP 976.000
(MET145)	AMES97-019(1A81) LVAP	8.000	.000	2.200	.000	YMRP 400.000
						SCALE .0300

FOREBODY NORMAL FORCE COEFFICIENT, CNF

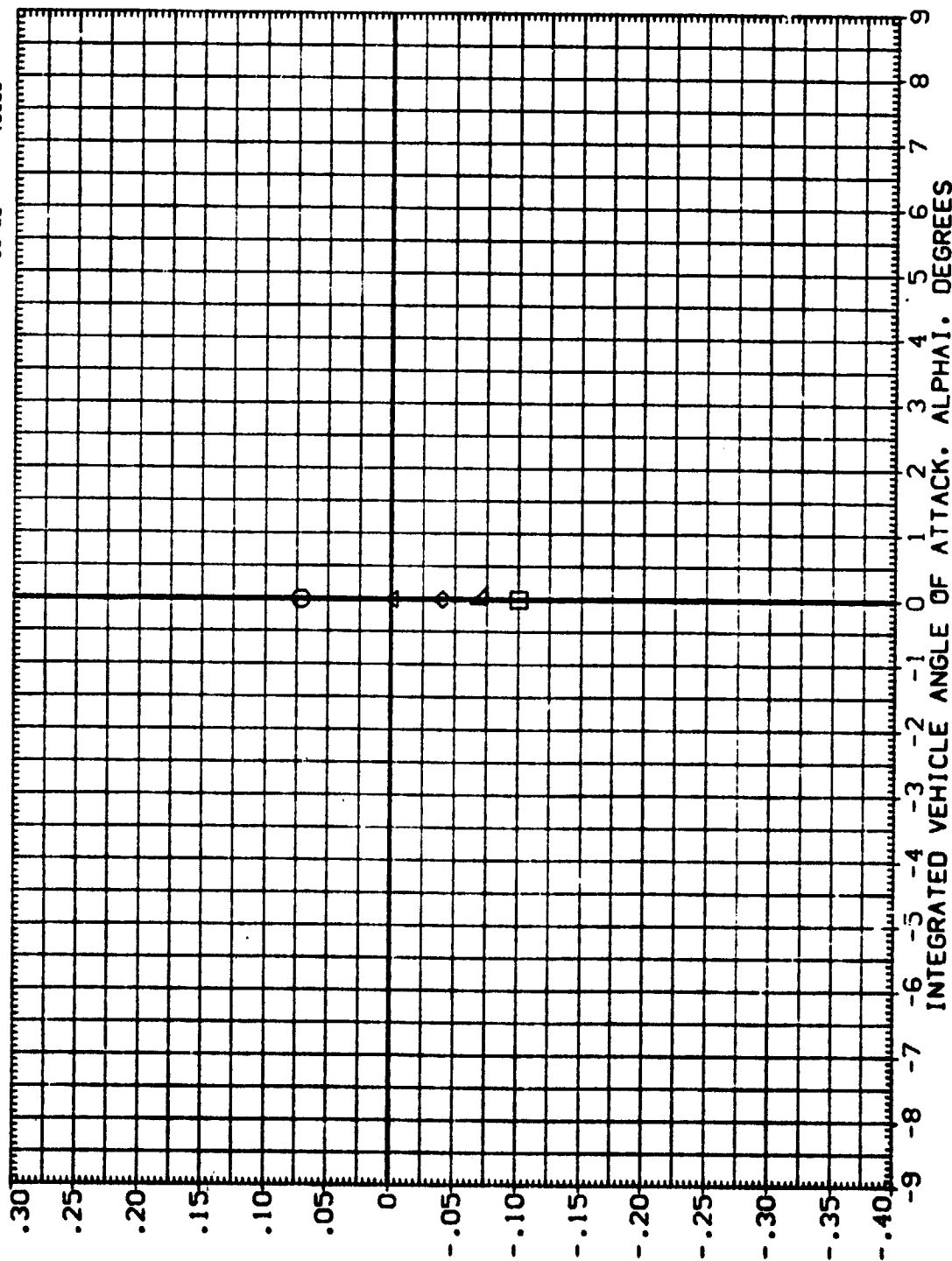


FIG. 14 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0

(ALPHA) = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPOBRK	REFERENCE INFORMATION
(MET045)	AMES97-019(IAB1) LVAP	8.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(MET145)	AMES97-019(IAB1) LVAP	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(MET145)	AMES97-019(IAB1) LVAP	8.000	.000	2.200	.000	SREF 1297.0000 IN.
(MET145)	AMES97-019(IAB1) LVAP	8.000	.000	2.200	.000	XMRP 976.0000 IN. XT
(MET145)	AMES97-019(IAB1) LVAP	8.000	.000	2.200	.000	YMRP 400.0000 IN. YT
(MET145)	AMES97-019(IAB1) LVAP	8.000	.000	2.200	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

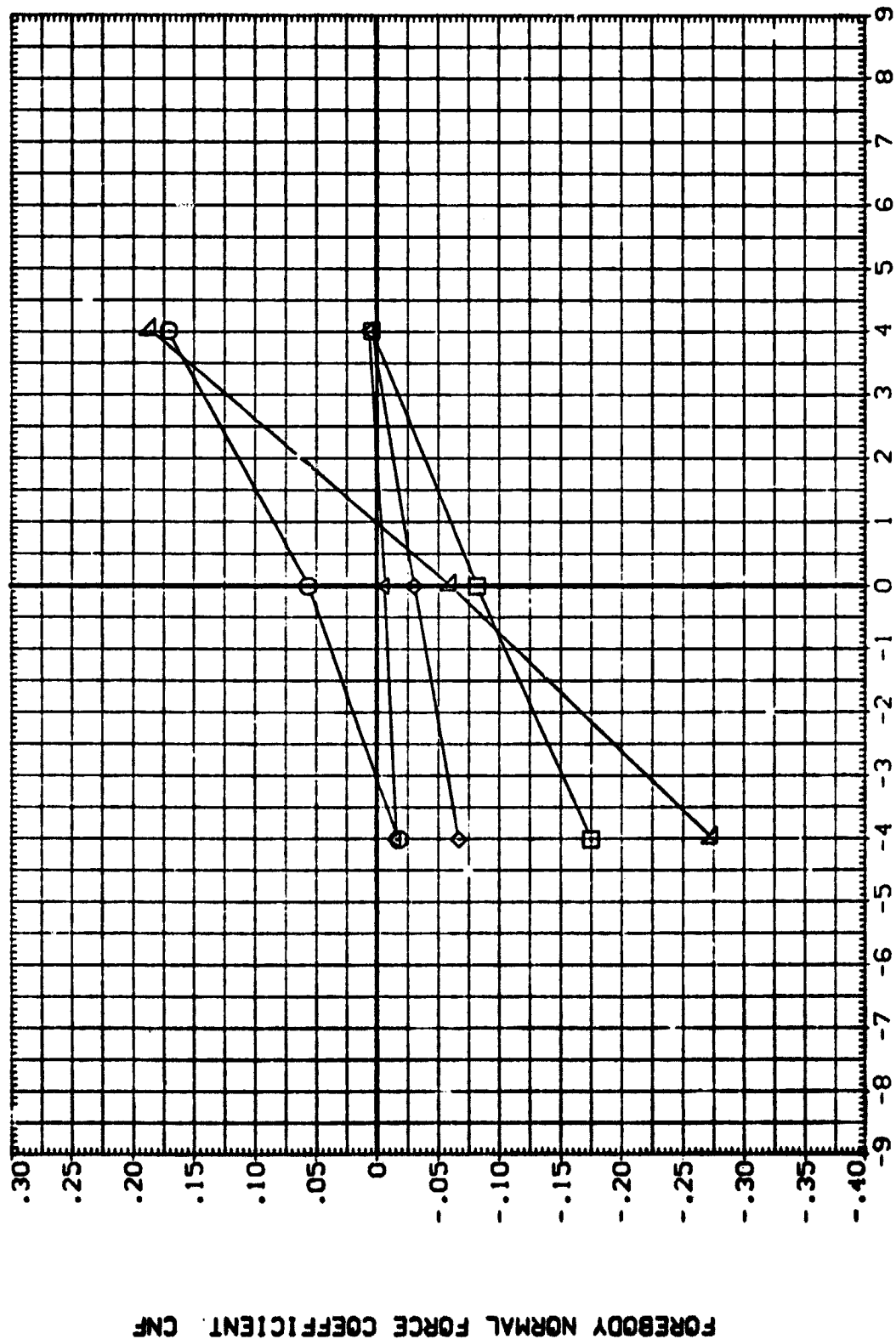


FIG. 14 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(MET045)	AWES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	.000	2.200	.000	SREF 2690.0000 SO.FT.
(MET145)	AWES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(MET145)	AWES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.200	.000	BREF 1.37.0000 IN. XT
(MET145)	AWES97-019(IAB1) LVAP R-LRB ALL HL SEALED	8.000	.000	2.200	.000	XMRP 976.0000 IN. YT
(MET145)	AWES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.200	.000	YMRP 400.0000 IN. ZT
						SCALE .0300

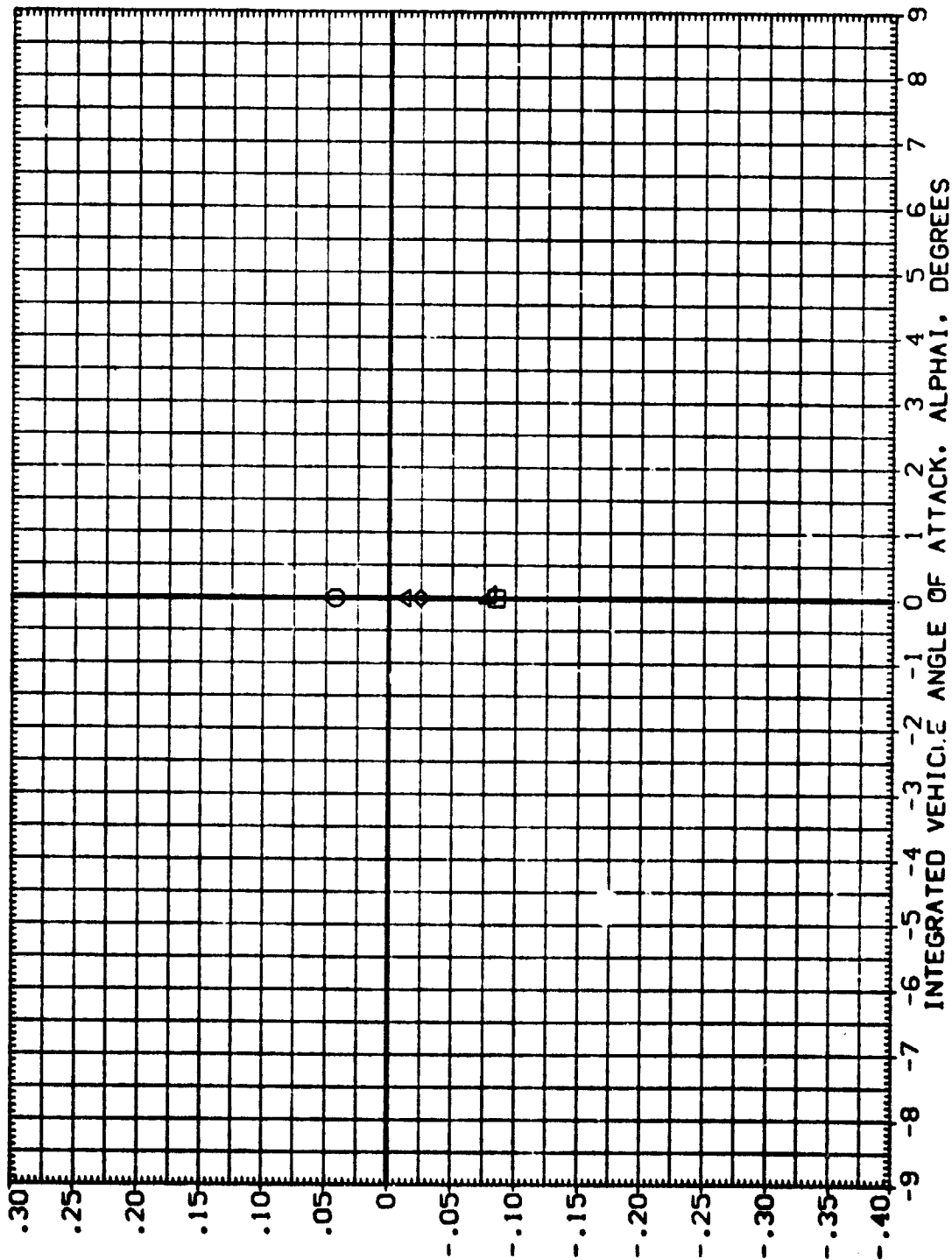


FIG. 14 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0

(CBETA) = -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(NET045)	AMES97-019(IAB1) LVAP ORBITTER-ALL HL SEALED	8.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(NET145)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(NET145)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.200	.000	BREF 1297.0000 IN.
(NET145)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	.000	2.200	.000	XMRP 976.0000 IN.
(NET145)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.200	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

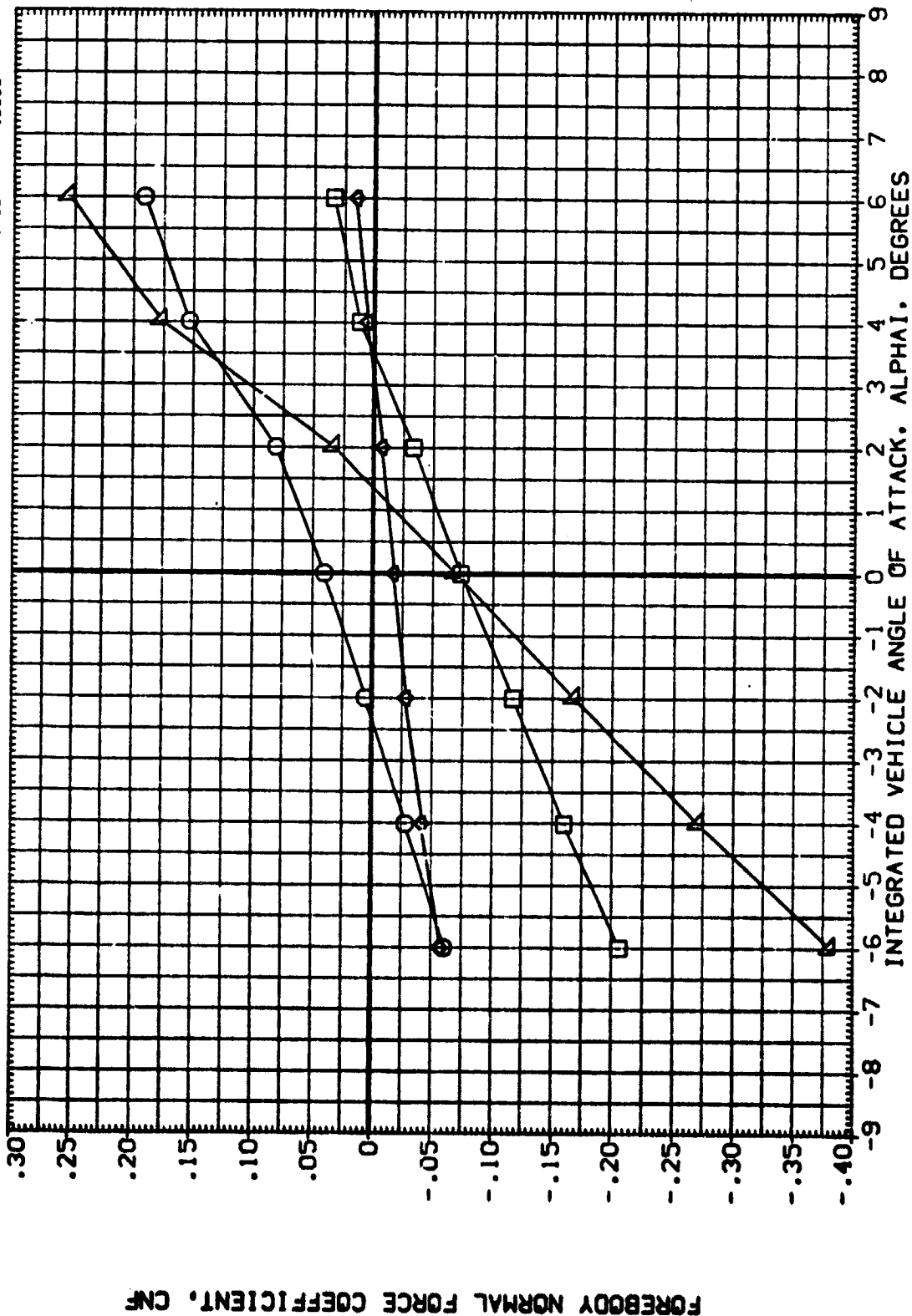


FIG. 14 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0

(0)BET.1 = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(MET045)	AMES97-019(IAB1) LVAP ORBITER-ALL TANK - ALL M SEALED	8.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(MET145)	AMES97-019(IAB1) LVAP TANK - ALL M SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(MET145)	AMES97-019(IAB1) LVAP L-SRB - ALL M SEALED	8.000	.000	2.200	.000	BREF 1297.0000 IN.
(MET145)	AMES97-019(IAB1) LVAP S-LRB - ALL M SEALED	8.000	.000	2.200	.000	XHRP 976.0000 IN. XT
(MET145)	AMES97-019(IAB1) LVAP INT VEH ALL M SEALED	8.000	.000	2.200	.000	YHRP 400.0000 IN. YT
						ZHRP 400.0000 IN. ZT
						SCALE .0300

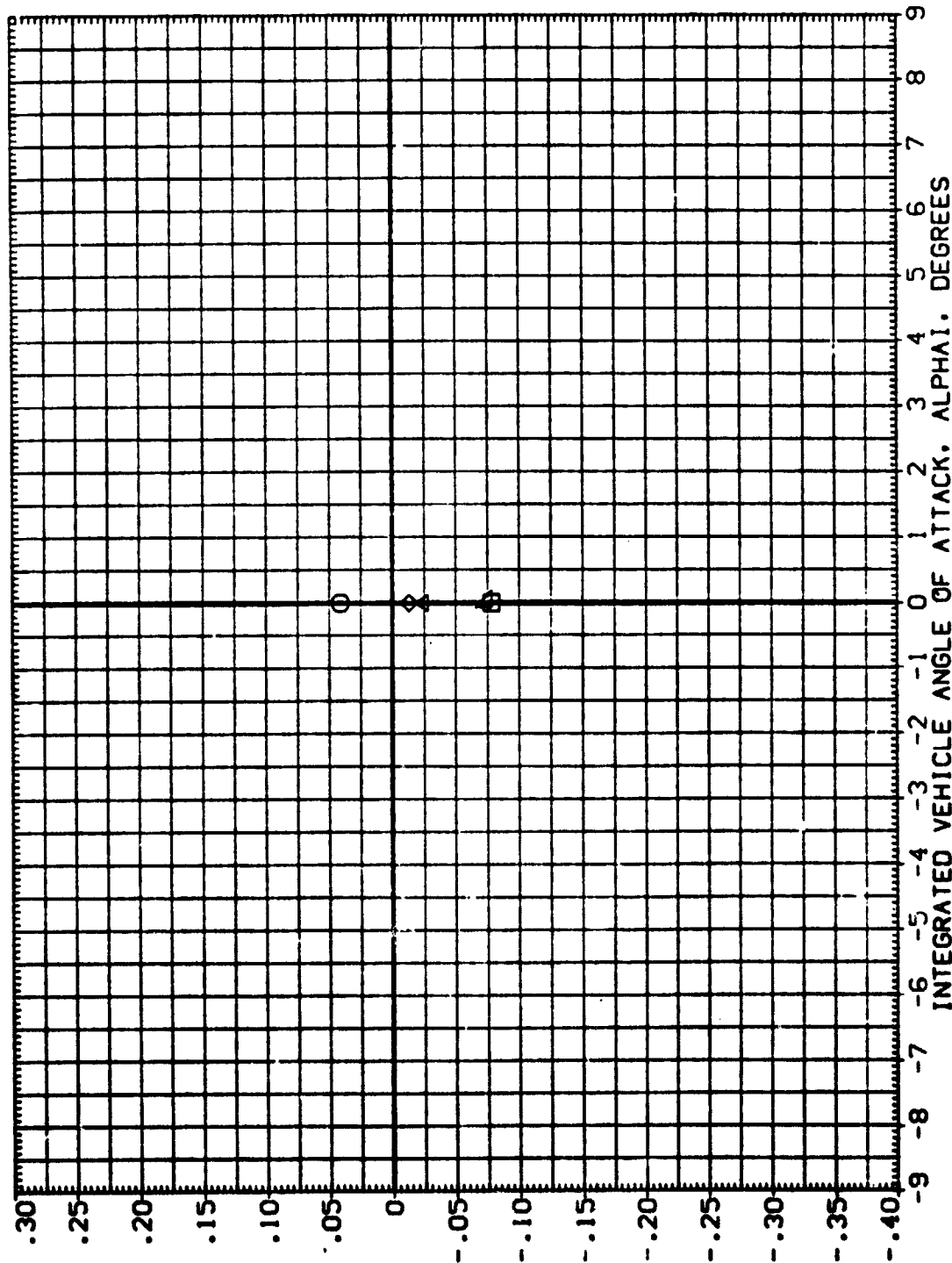


FIG. 14 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDRBK	REFERENCE INFORMATION
(MET045)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(MET145)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(METL45)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.200	.000	BREF 1297.0000 IN.
(METR45)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	.000	2.200	.000	YMRP 976.0000 IN. XT
(METI45)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.200	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

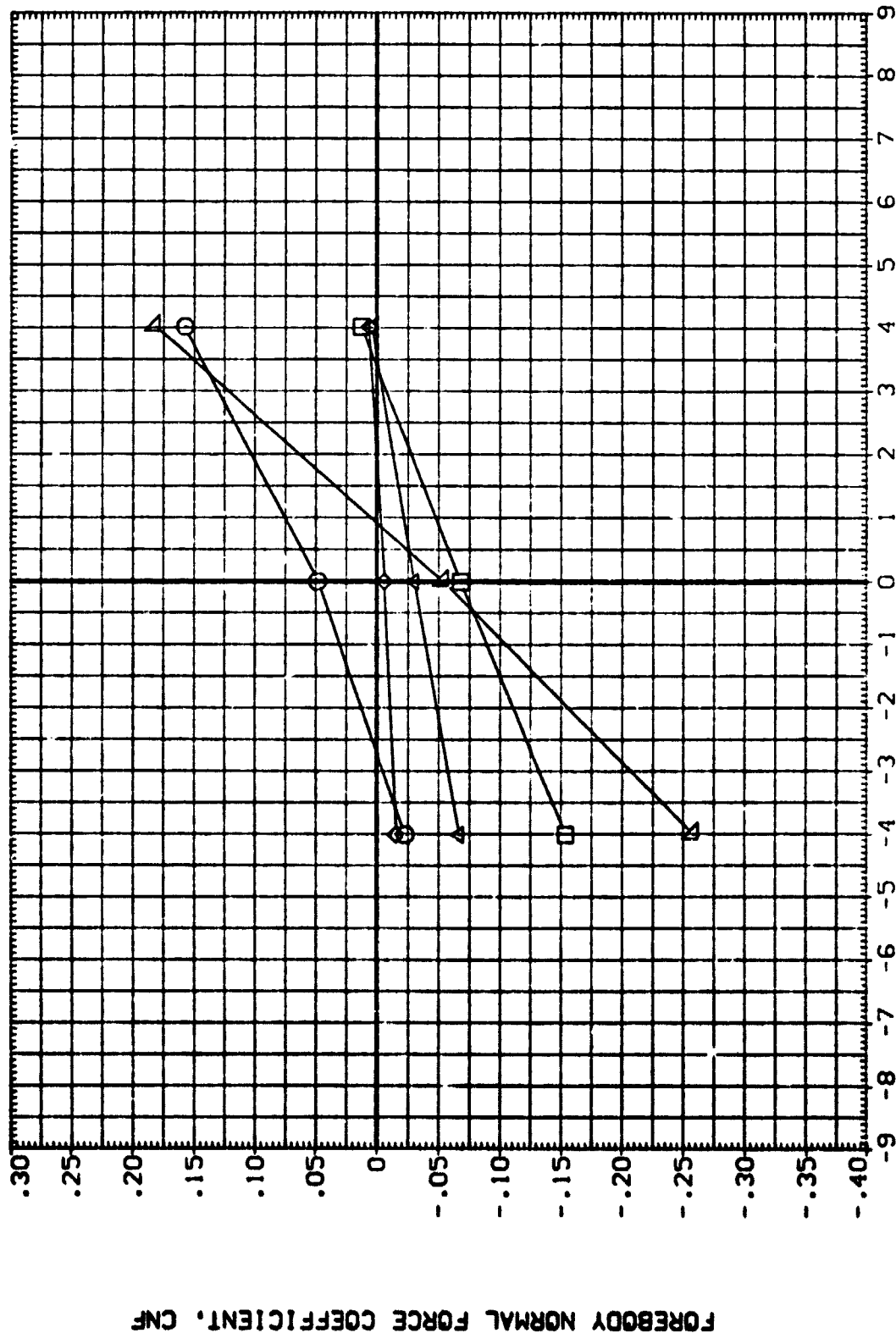


FIG. 14 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0

(F)BET I = 4.00

DATA SET SYMBOL CONFIGURATION DESCRIPTION

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(MET045)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(MET145)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(METL45)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.200	.000	BREF 1297.0000 IN.
(METR45)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	.000	2.200	.000	XMRP 976.0000 IN.
(MET145)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.200	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

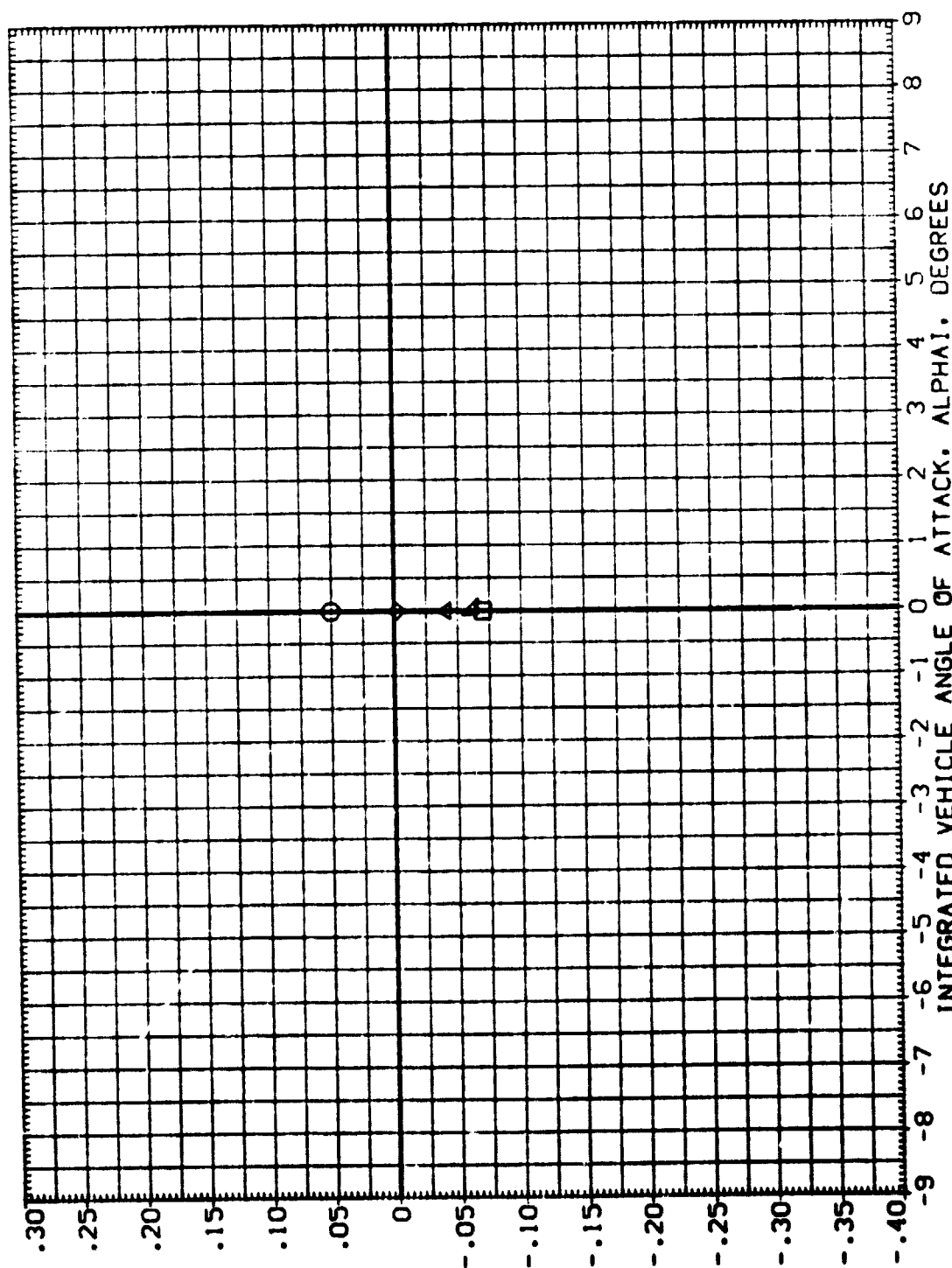


FIG. 14 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(MET045)	AMES97-019(IAB1) LVAP ORBITER-ALL ML SEALED	8.000	.000	2.200	.000	SREF 2690.0000 SO.FT.
(MET145)	AMES97-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(MET145)	AMES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	8.000	.000	2.200	.000	BREF 976.0000 IN. XT
(MET145)	AMES97-019(IAB1) LVAP R-LPB ALL ML SEALED	8.000	.000	2.200	.000	YMRP .0000 IN. YT
(MET145)	AMES97-019(IAB1) LVAP INT VEM ALL ML SEALED	8.000	.000	2.200	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

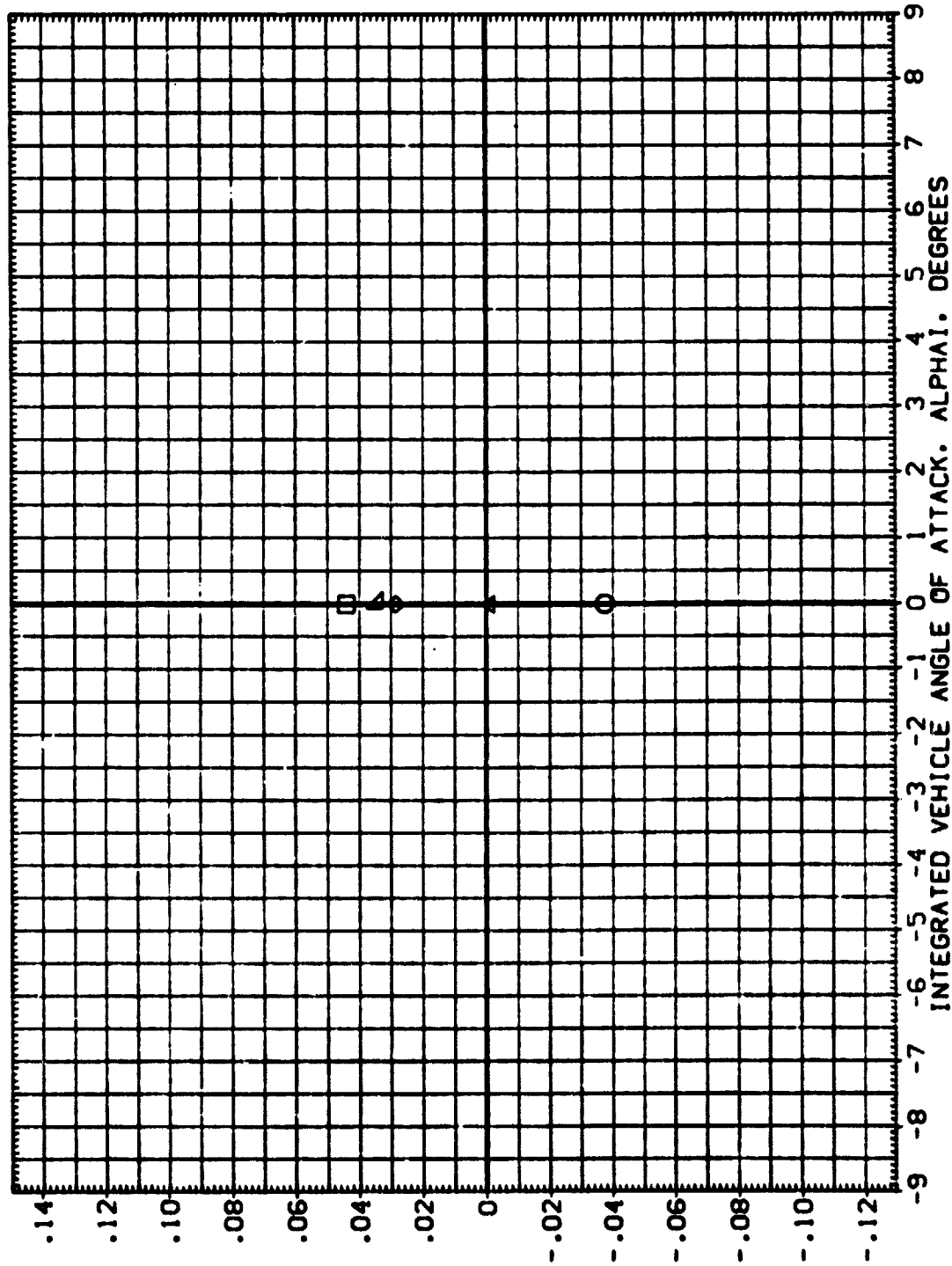


FIG. 14 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0

(A)BET.1 = -6.00

DATA SET SYMBOL. CONFIGURATION DESCRIPTION

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBWK	REFERENCE INFORMATION
(MET043)	ORBITER-ALL M SEALED	8.000	.000	2.200	.000	SREF 2630.0000 SO.FT.
(MET145)	TANK - ALL M SEALED	8.000	.000	2.200	.000	LREF 1237.0000 IN.
(MET145)	L-SRB - ALL M SEALED	8.000	.000	2.200	.000	BREF 1237.0000 IN.
(MET145)	R-LRB - ALL M SEALED	8.000	.000	2.200	.000	YMRP 976.0000 IN.
(MET145)	INT VEH ALL M SEALED	8.000	.000	2.200	.000	ZMRP 400.0000 IN.
						SCALE .0300

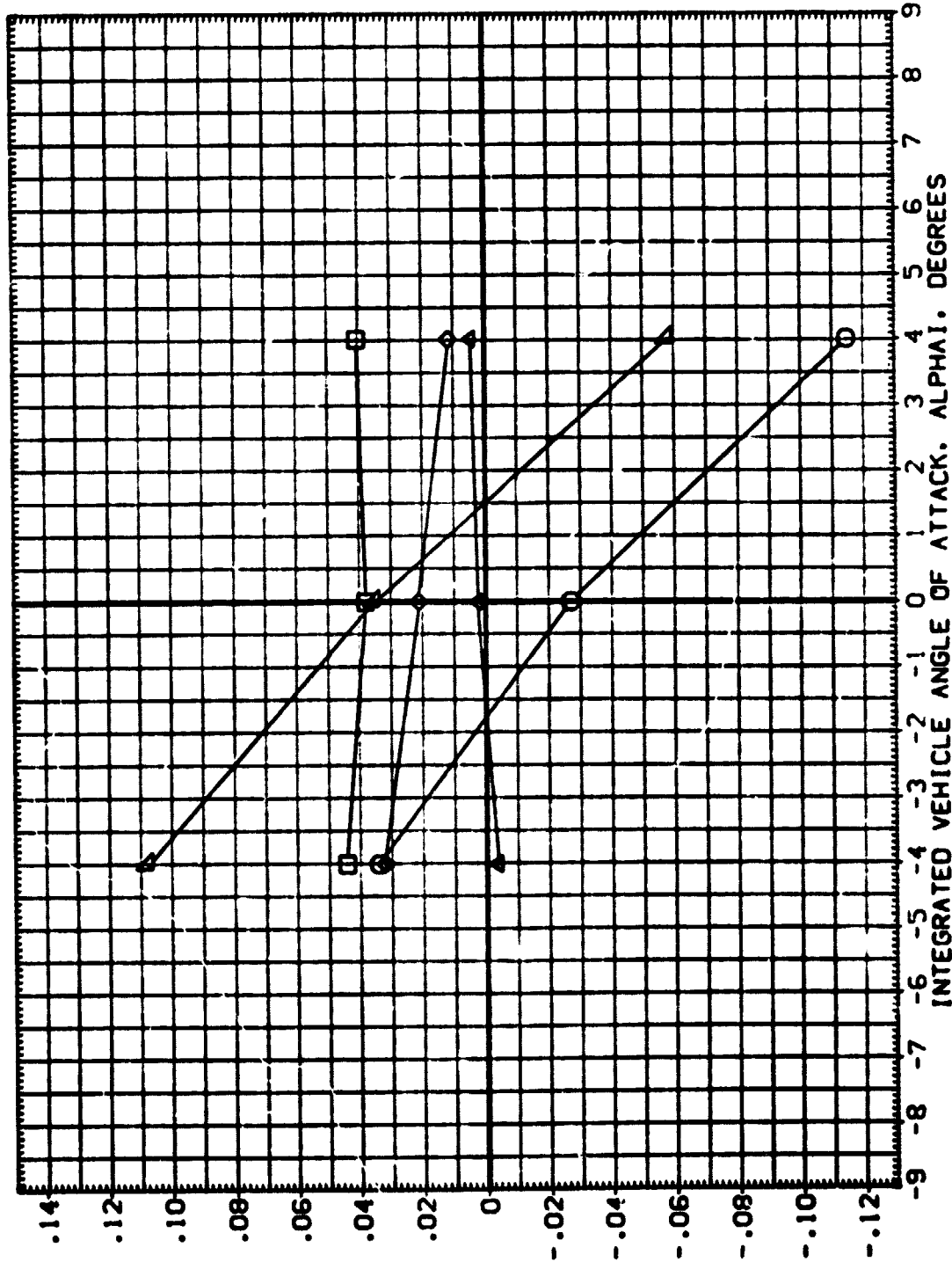


FIG. 14 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS. M=2.2 DEV=8/0

(B)BET.1 = -4.00

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOROK	REFERENCE INFORMATION
(MET143)	AMES97-0191(AB1) LVAP	8.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(MET143)	AMES97-0191(AB1) LVAP	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(MET143)	AMES97-0191(AB1) LVAP	8.000	.000	2.200	.000	BREF 1297.0000 IN.
(MET143)	AMES97-0191(AB1) LVAP	8.000	.000	2.200	.000	YPROP 576.0000 IN. YI
(MET143)	AMES97-0191(AB1) LVAP	8.000	.000	2.200	.000	ZPROP 400.0000 IN. ZI
						SCALE .0300

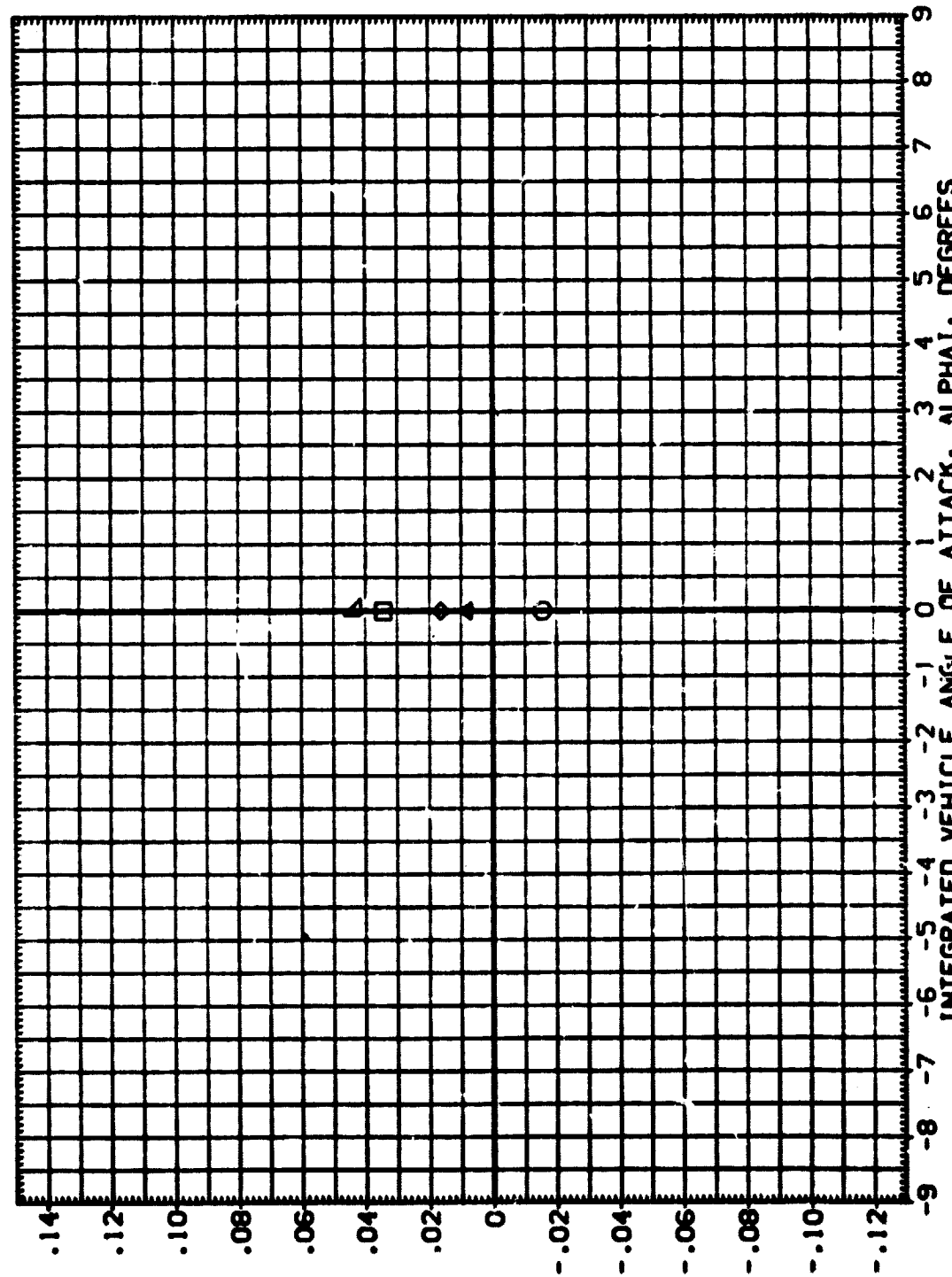


FIG. 14 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0

DATA SET SYMOL	CONFIGURATION DESCRIPTION	CLV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(MET145)	AME597-019(IAB1) LVAP TANK - ALL M SEALED	8.000	.000	2.200	.000	SREF 7690.0000 SQ.FT.
(MET145)	AME597-019(IAB1) LVAP TANK - ALL M SEALED	8.000	.000	2.200	.000	LREF 1797.0000 IN.
(MET145)	AME597-019(IAB1) LVAP L-SUB - ALL M SEALED	8.000	.000	2.200	.000	BREF 1237.0000 IN.
(MET145)	AME597-019(IAB1) LVAP R-LUB - ALL M SEALED	8.000	.000	2.200	.000	VRBP 576.0000 IN.
(MET145)	AME597-019(IAB1) LVAP INT VEH - ALL M SEALED	8.000	.000	2.200	.000	VRBP 400.0000 IN.
						SCALE .0300

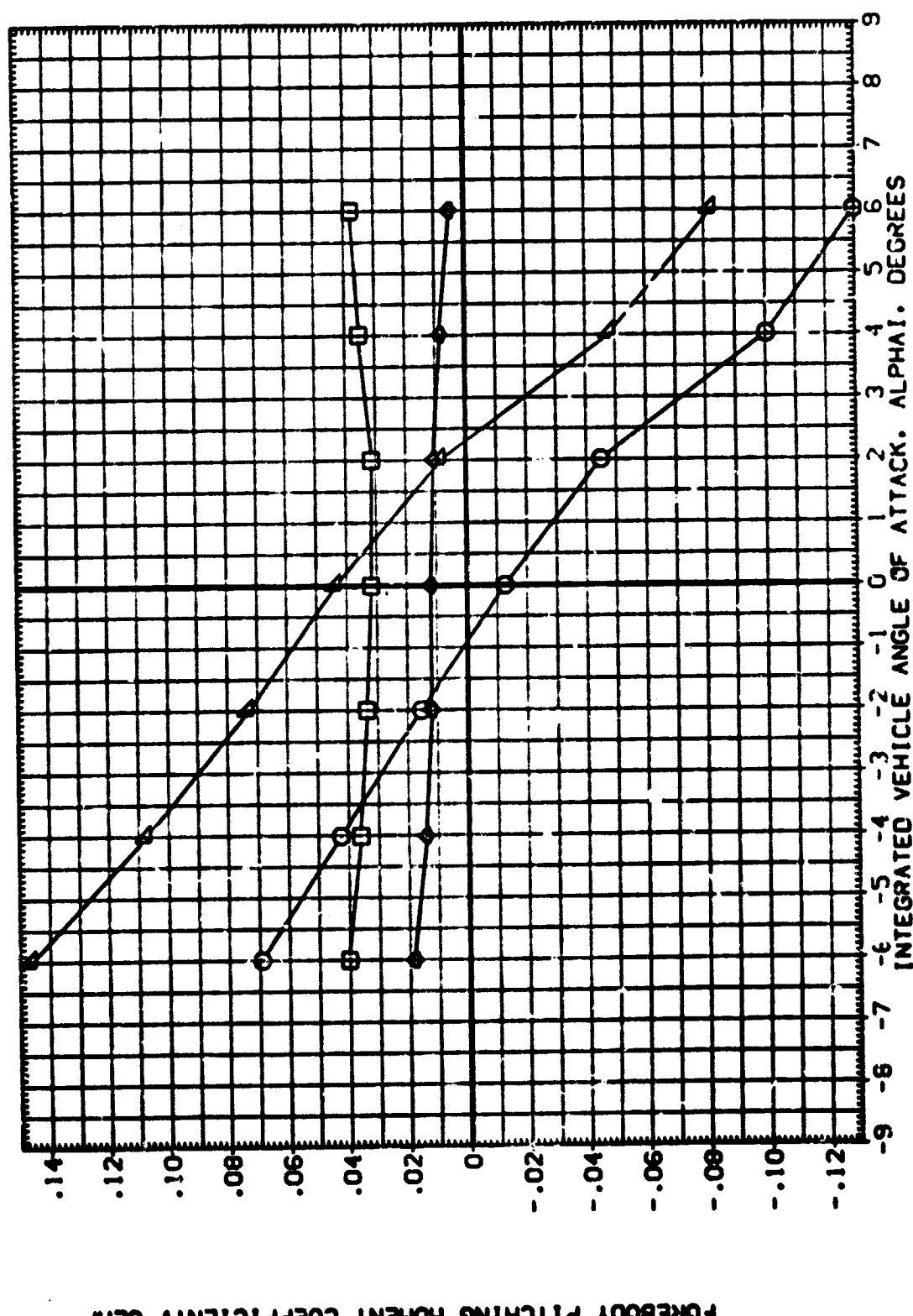


FIG. 14 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=2.2$ $DEV=8/0$

(O)BET.1 = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(MET045)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(MET145)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(MET145)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.200	.000	BREF 1297.0000 IN.
(MET145)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	.000	2.200	.000	XMRP 376.0000 IN.
(MET145)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.200	.000	ZMRP 400.0000 IN.
						SCALE .0300

FOREBODY PITCHING MOMENT COEFFICIENT, CLMF

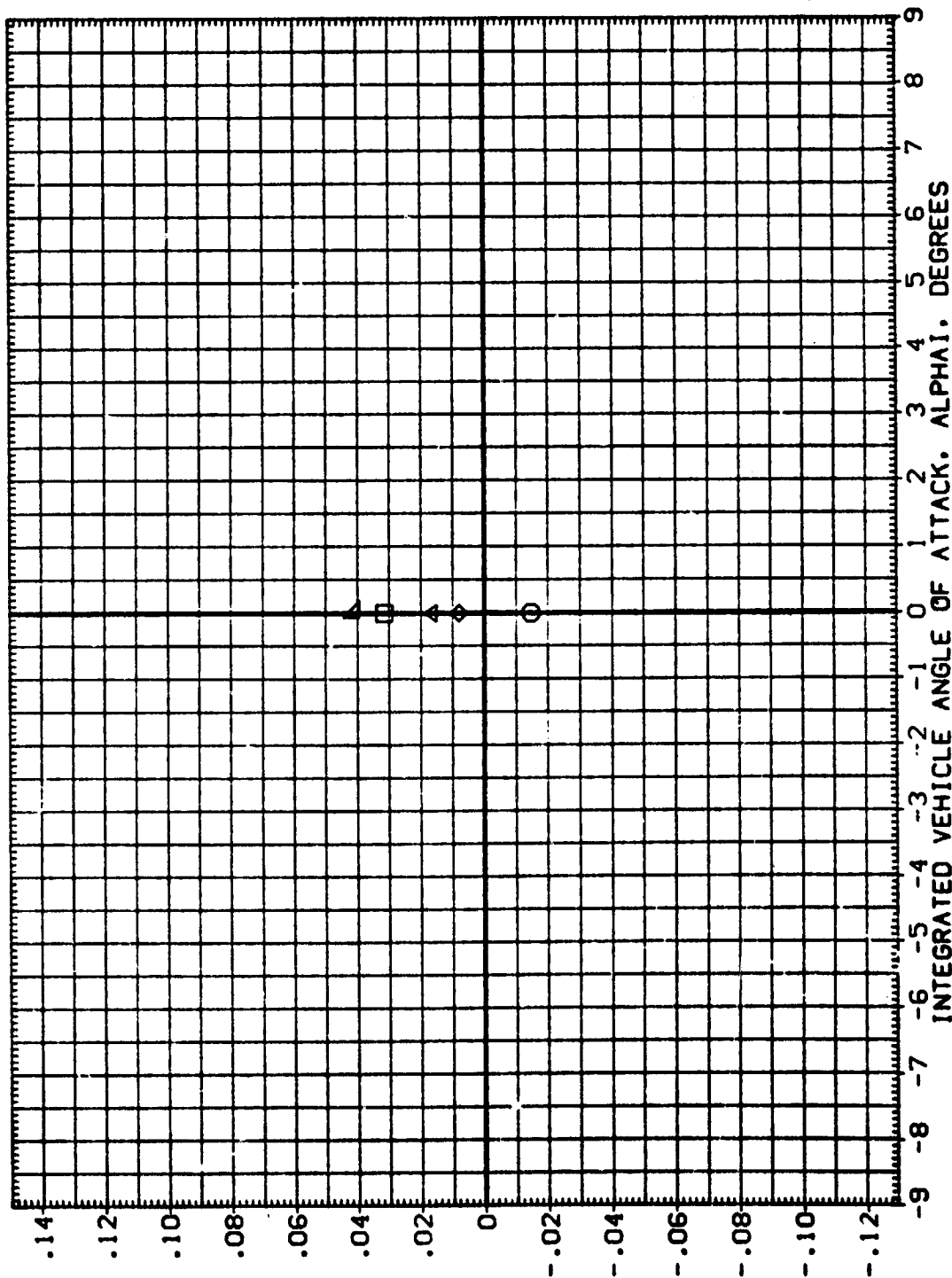


FIG. 14 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(MET045)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(MET145)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(MET145)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.200	.000	BREF 1297.0000 IN. XT
(MET145)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	.000	2.200	.000	YMRP 976.0000 IN. YT
(MET145)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.200	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

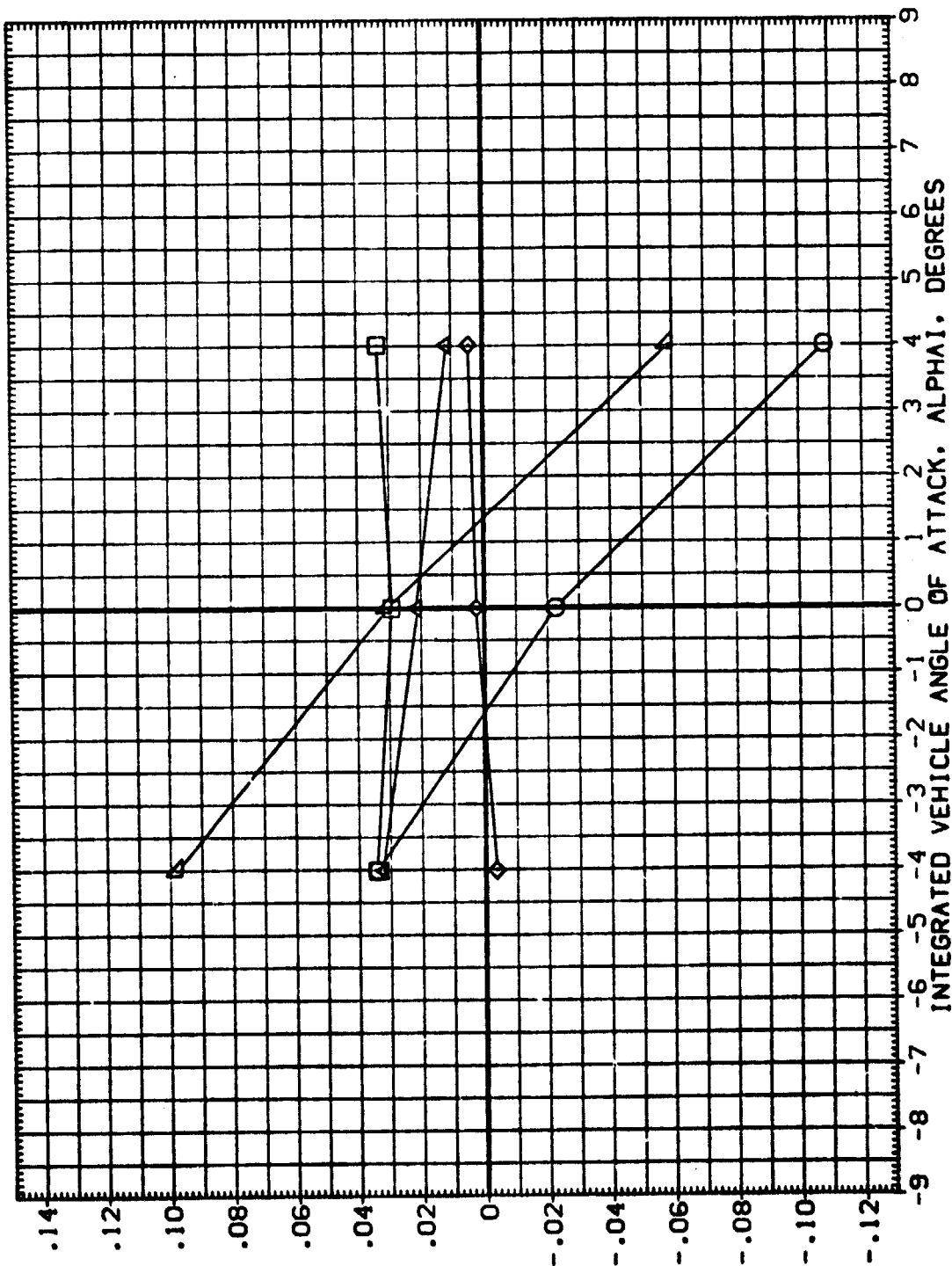


FIG. 14 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0

(FBET) I = 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION			
(PET145)	AMES97-019(IAB1) LVAP ORBITTER-ALL HL SEALED	8.000	.000	2.200	.000	SREF	2690.0000	50.FT.	
(PET145)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.200	.000	LREF	1297.0000	174.	
(PET145)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.200	.000	BREF	1297.0000	IN.	XT
(PET145)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	.000	2.200	.000	XMRP	976.0000	IN.	YT
(PET145)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.200	.000	ZMRP	400.0000	IN.	ZT
						SCALE	.0300		

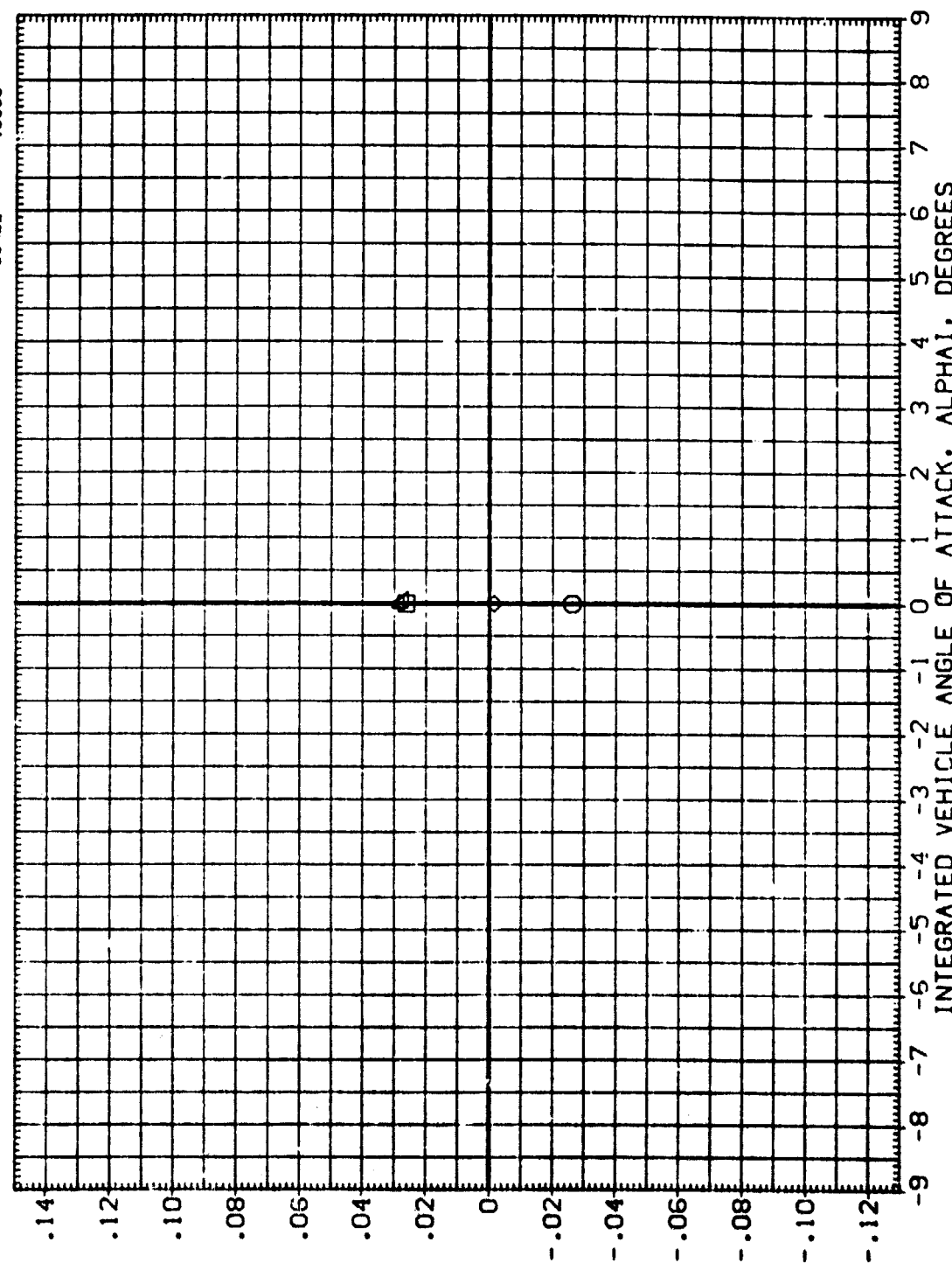
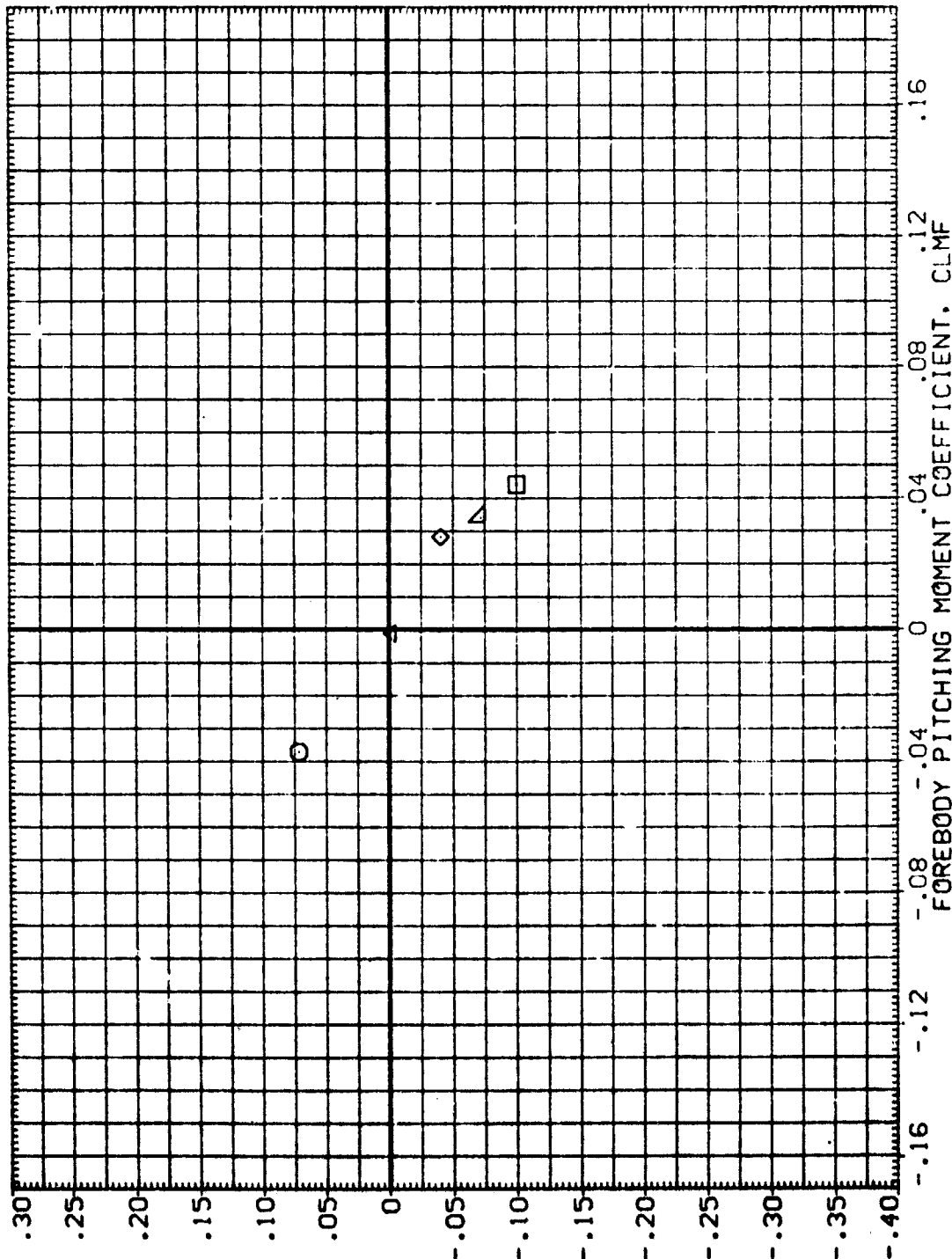


FIG. 14 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0

(G)BET.I = 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(MET043)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(MET145)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(MET145)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.200	.000	BREF 1297.0000 IN.
(MET145)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	.000	2.200	.000	YMRP 976.0000 IN.
(MET145)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.200	.000	ZMRP 400.0000 IN.
						SCALE .0300



FOREBODY NORMAL FORCE COEFFICIENT, CNF

FIG. 14 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0

(A)BET.1 = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION			
(MET045)	AMES97-019(1A81) LVAP ORBITER-ALL ML SEALED	8.000	.000	2.200	.000	SREF	2690.0000	SQ.FT.	
(MET145)	AMES97-019(1A81) LVAP TANK - ALL ML SEALED	8.000	.000	2.200	.000	LREF	1297.0000	IN.	
(MET145)	AMES97-019(1A81) LVAP L-SRB - ALL ML SEALED	8.000	.000	2.200	.000	BREF	1297.0000	IN.	XT
(MET145)	AMES97-019(1A81) LVAP R-LRB - ALL ML SEALED	8.000	.000	2.200	.000	YMRP	976.0000	IN.	YT
(MET145)	AMES97-019(1A81) LVAP INT VEH ALL ML SEALED	8.000	.000	2.200	.000	ZMRP	400.0000	IN.	ZT
						SCALE			.0300

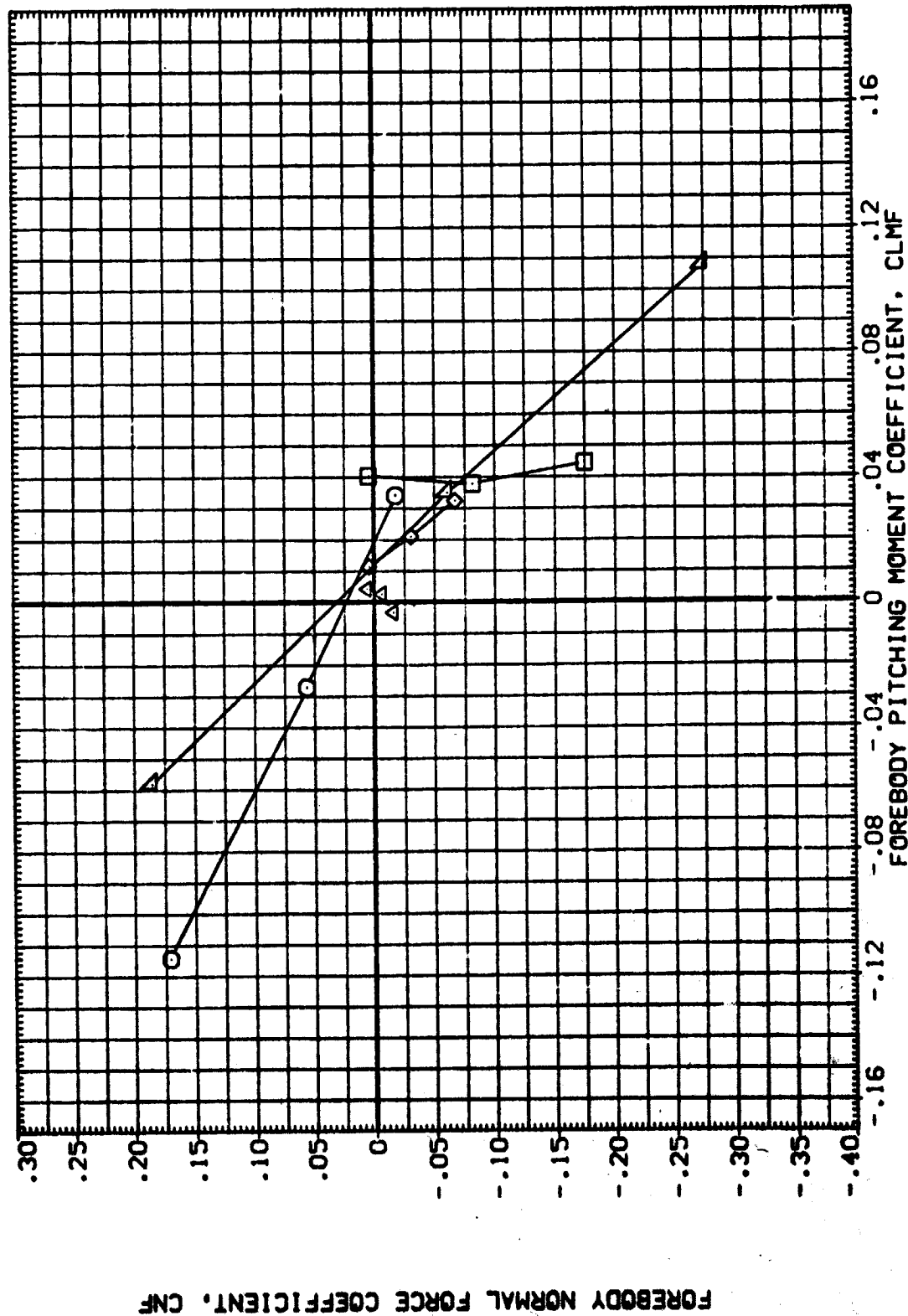


FIG. 14 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0

(B)BET.I = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-09	MACH	SPDBRK	REFERENCE INFORMATION
(MET045)	AME597-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	.000	2.200	.000	SREF 2690.0000 SO.FT.
(MET145)	AME597-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(MET145)	AME597-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.200	.000	BREF 1297.0000 IN.
(MET145)	AME597-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	.000	2.200	.000	YMRP 976.0000 IN. XT
(MET145)	AME597-019(IAB1) LVAP INT /EM ALL HL SEALED	8.000	.000	2.200	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

FOREBODY NORMAL FORCE COEFFICIENT, CNF

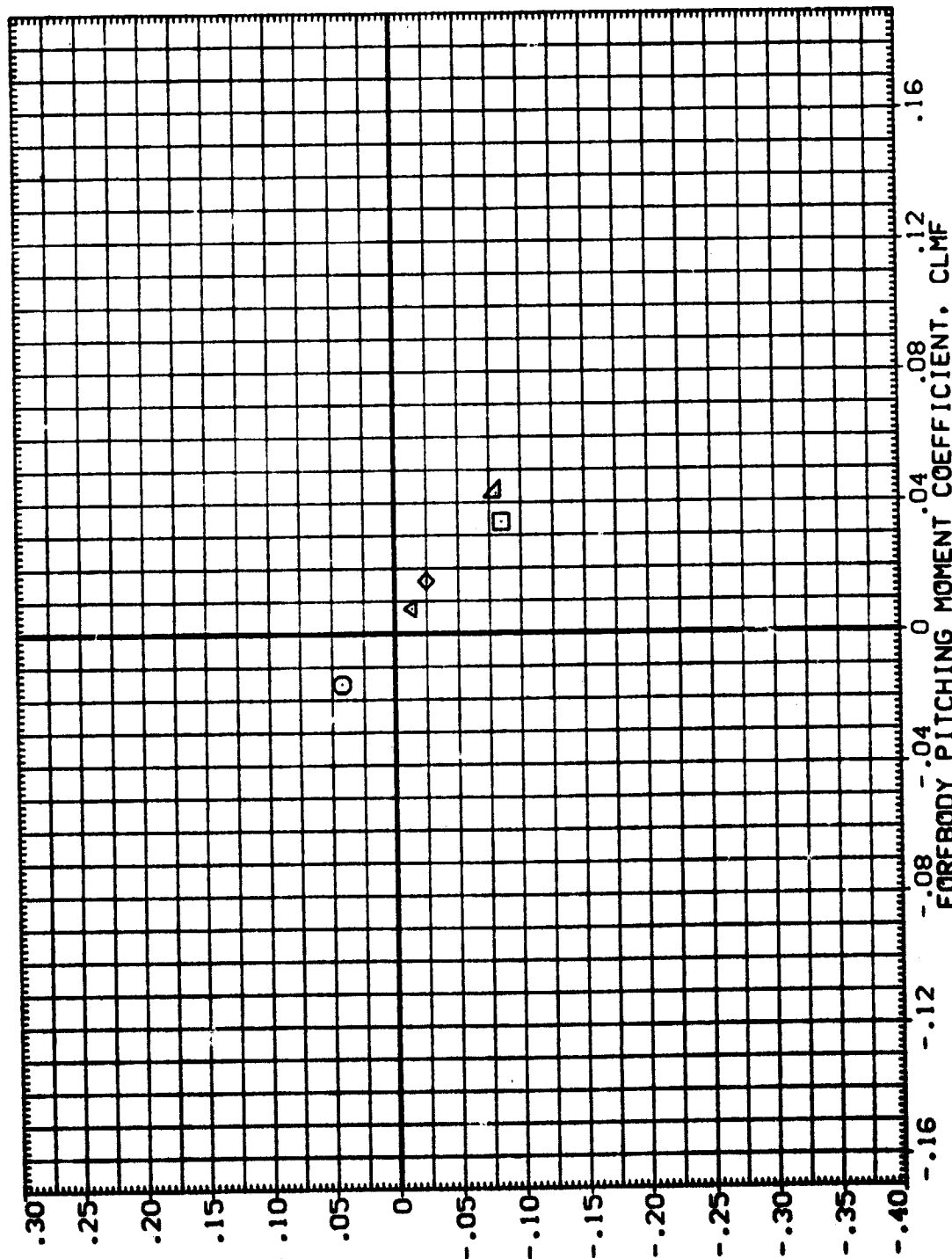


FIG. 14 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0

(C)BET.1 = -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRBK	REFERENCE INFORMATION
(MET043)	AWES97-019(IAB1) LVAP ORBITTER-ALL HL SEALED	8.000	.000	2.200	.000	SREF 2690.0000 SO.FT.
(MET145)	AWES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(MET145)	AWES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.200	.000	PRE 1297.0000 IN.
(MET145)	AWES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	.000	2.200	.000	YMRP 976.0000 IN.
(MET145)	AWES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.200	.000	ZMRP 400.0000 IN.
						SCALE .0300

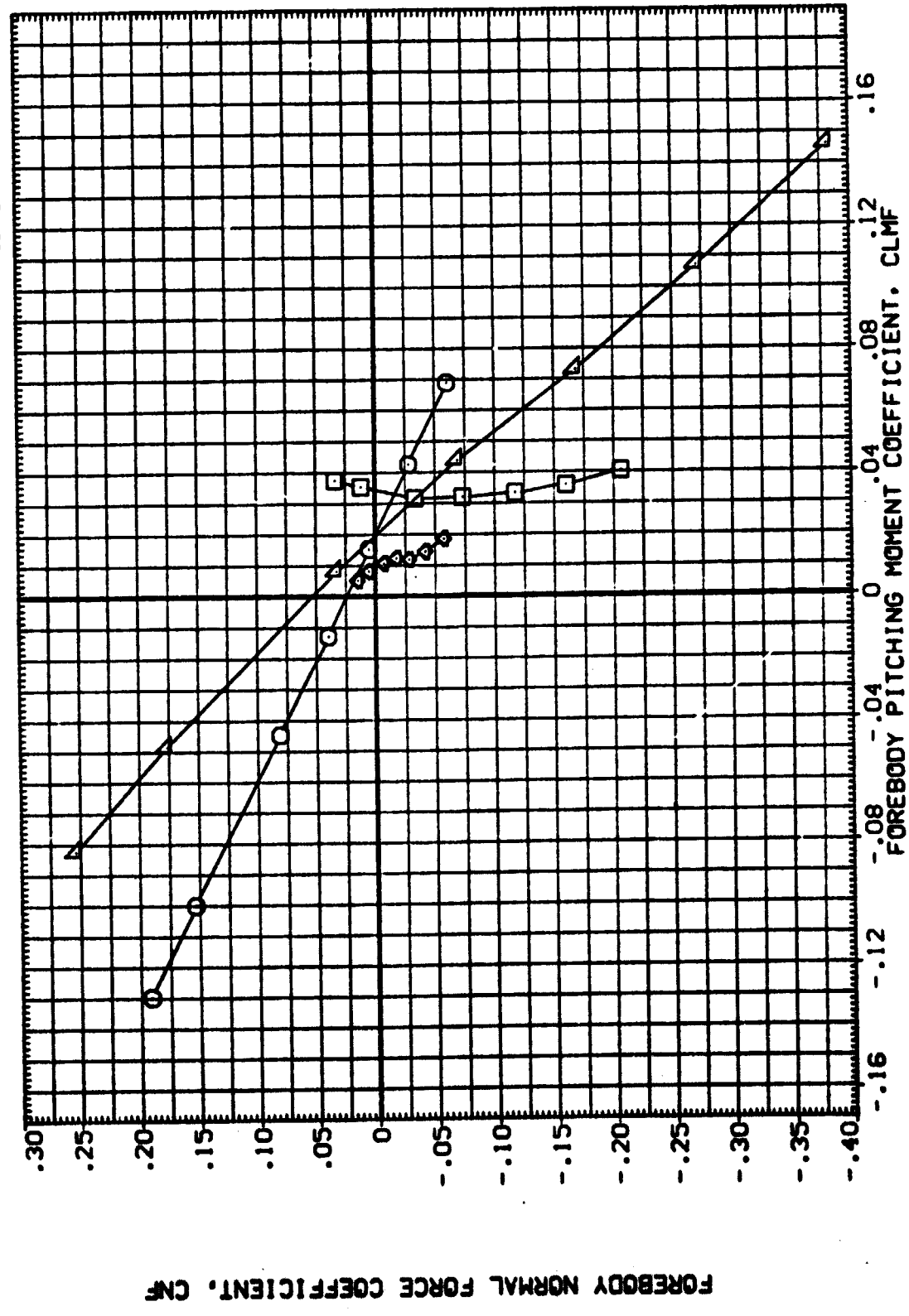


FIG. 14 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0

(O)BETA1 = .00

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DATA SET SYMBOL: (METAS) (METAS) (METAS) (METAS) (METAS)

CONFIGURATION DESCRIPTION: ANES97-019C(AB1) LVAP DRBITER-ALL ML SEALED
 ANES97-019C(AB1) LVAP TANK - ALL ML SEALED
 ANES97-019C(AB1) LVAP L-SRB - ALL ML SEALED
 ANES97-019C(AB1) LVAP R-LRB - ALL ML SEALED
 ANES97-019C(AB1) LVAP INT VEM ALL ML SEALED

ELV-18 8.000 ELV-08 .000 MACH 2.200 SPOBRK .000
 8.000 .000 2.200 .000
 8.000 .000 2.200 .000
 8.000 .000 2.200 .000
 8.000 .000 2.200 .000

REFERENCE INFORMATION: SREF 2690.0000 SQ. FT.
 LREF 1397.0000 IN.
 BREF 1397.0000 IN.
 XMRP 976.0000 IN.
 YMRP .0000 IN.
 ZMRP 400.0000 IN.
 SCALE .0300

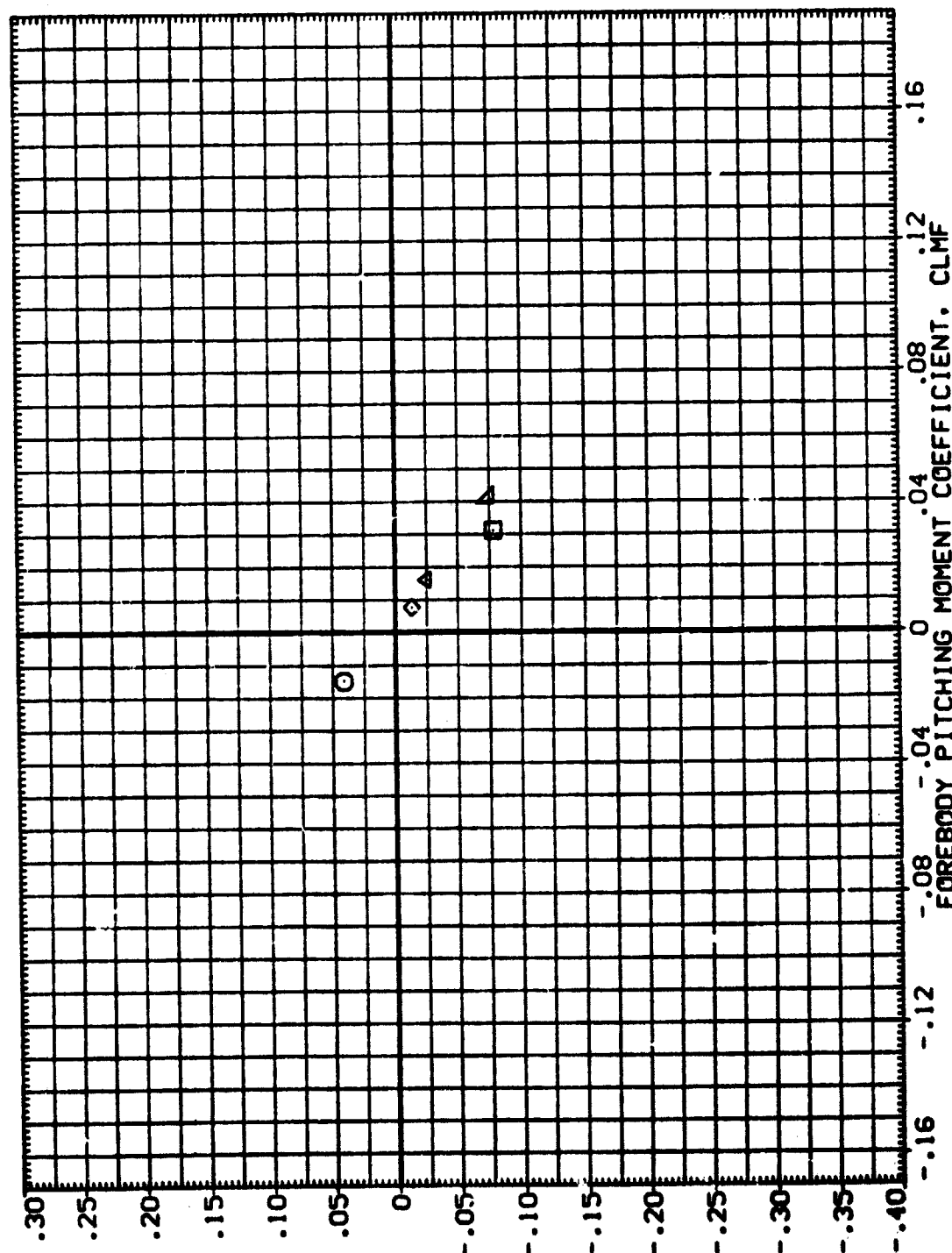


FIG. 14 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/C

(E)BET.1 = 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(METRVS)	AMES97-019(IAB1) LVAP ORBITER-ALL M SEALED	8.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(METRVS)	AMES97-019(IAB1) LVAP TANK - ALL M SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(METRVS)	AMES97-019(IAB1) LVAP L-SRB - ALL M SEALED	8.000	.000	2.200	.000	BREF 1297.0000 IN.
(METRVS)	AMES97-019(IAB1) LVAP R-LRB ALL M SEALED	8.000	.000	2.200	.000	YMRP 576.0000 IN. XT
(METRVS)	AMES97-019(IAB1) LVAP INT VEN ALL M SEALED	8.000	.000	2.200	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

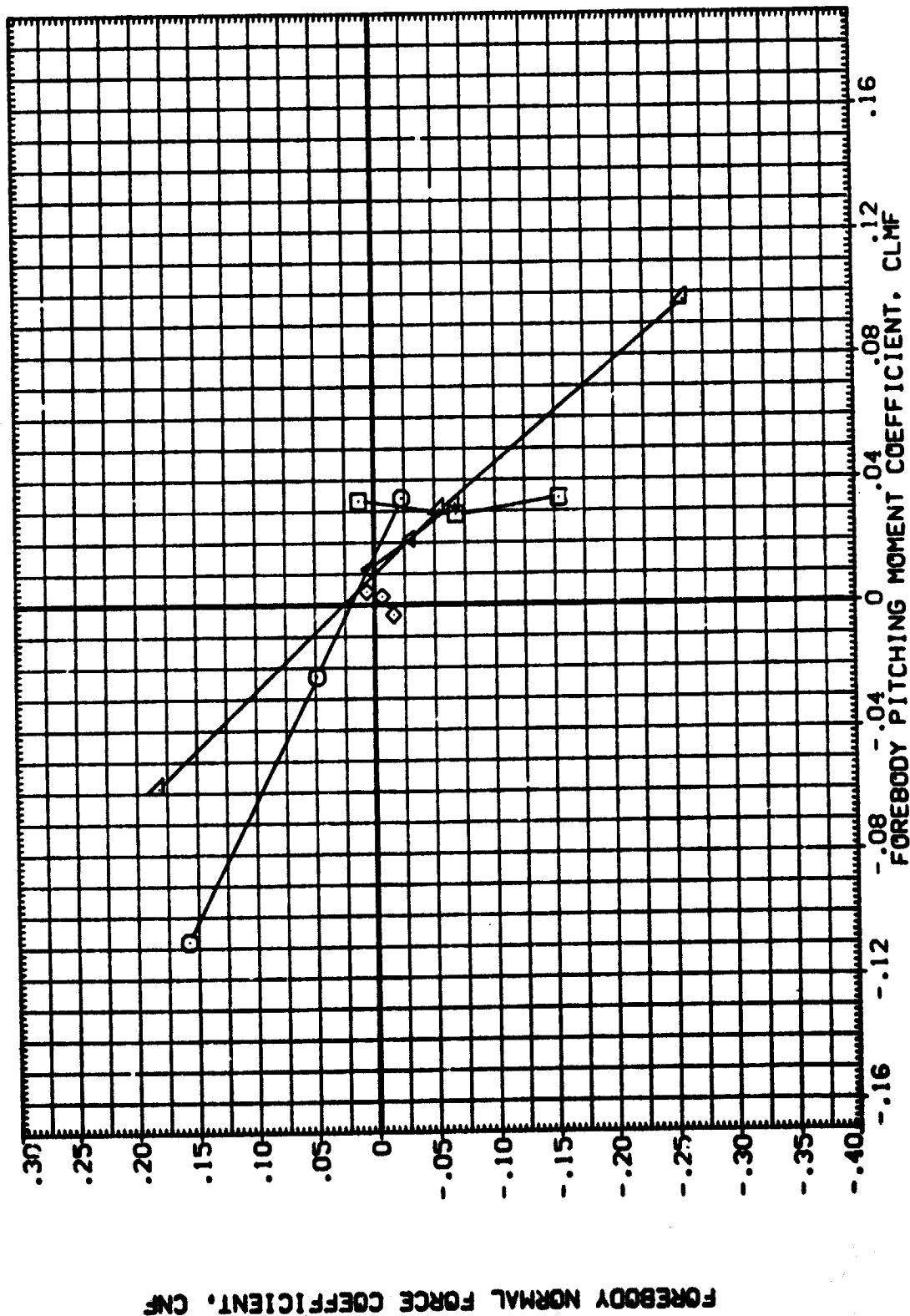


FIG. 14 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0

(F)BET.1 = 4.00

DATA SET SYMBOL
(MET143)
(MET143)
(MET143)
(MET143)

CONFIGURATION DESCRIPTION
AVE597-019(IAB1) LVAP ORBITER-ALL M SEALED
AVE597-019(IAB1) LVAP TANK - ALL M SEALED
AVE597-019(IAB1) LVAP L-SRB - ALL M SEALED
AVE597-019(IAB1) LVAP R-LRB ALL M SEALED
AVE597-019(IAB1) LVAP INT VEN ALL M SEALED

ELV-18 8.000
ELV-08 .000
MACH 2.200
SPDRK .000
REFERENCE INFORMATION
SREF 2690.0000 SQ.FT.
LREF 1297.0000 IN.
BREF 1297.0000 IN.
XMRP 976.0000 IN.
YMRP 400.0000 IN.
ZMRP .0300 IN.
SCALE

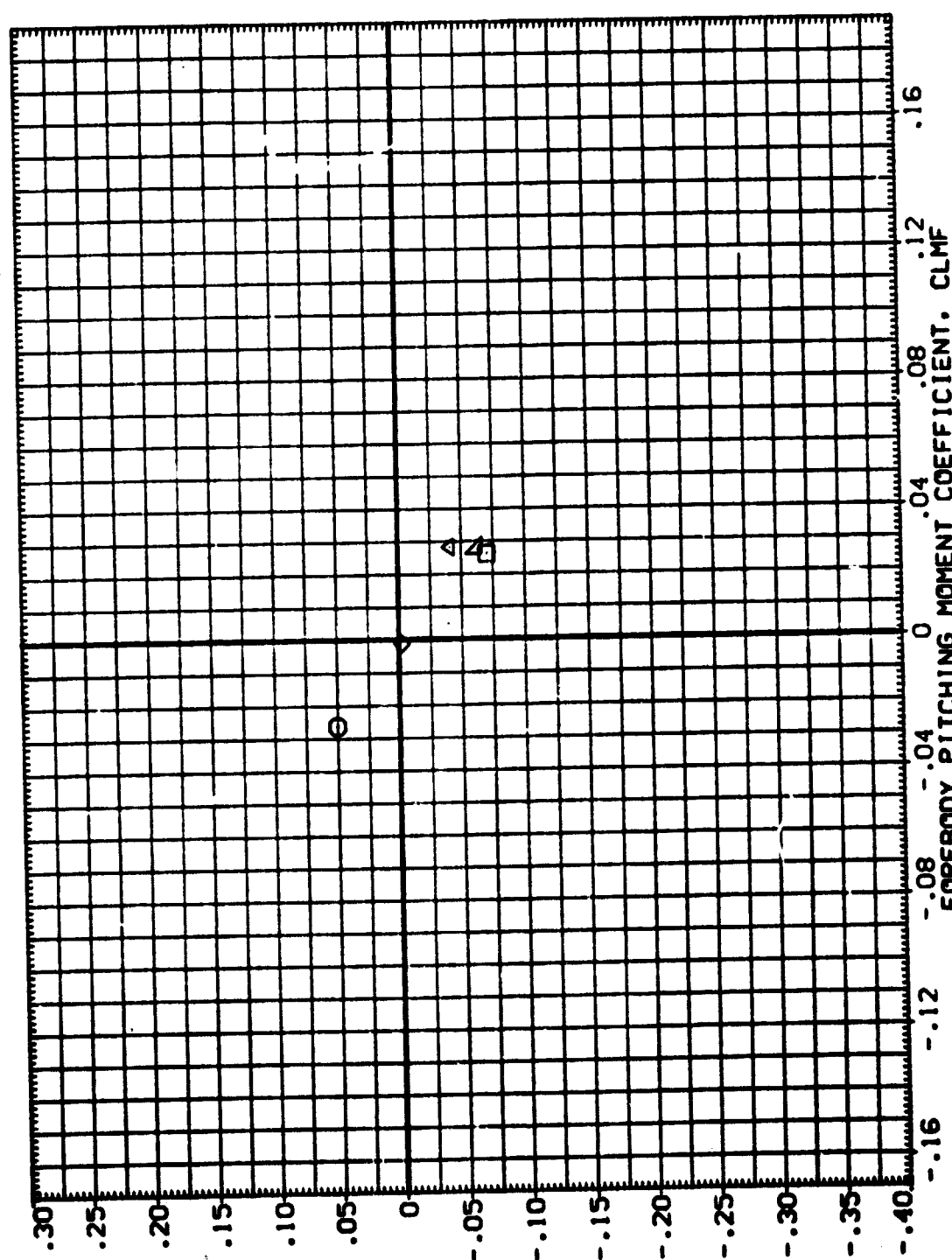


FIG. 14 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0
(G)BET.1 = 6.00 PAGE 284

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(MET038)	AMES97-0191 (AB1) LVAP ORBITER-ALL M1 SEALED	8.000	-4.000	2.500	.000	SRF 2690.0000 SQ.FT.
(MET138)	AMES97-0191 (AB1) LVAP TANK - ALL M1 SEALED	8.000	-4.000	2.500	.000	LNRF 1297.0000 IN.
(MET138)	AMES97-0191 (AB1) LVAP L-SRB - ALL M1 SEALED	8.000	-4.000	2.500	.000	BRF 1297.0000 IN.
(MET138)	AMES97-0191 (AB1) LVAP R-LRB - ALL M1 SEALED	8.000	-4.000	2.500	.000	XRFP 976.0000 IN.
(MET138)	AMES97-0191 (AB1) LVAP INT VEH ALL M1 SEALED	8.000	-4.000	2.500	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

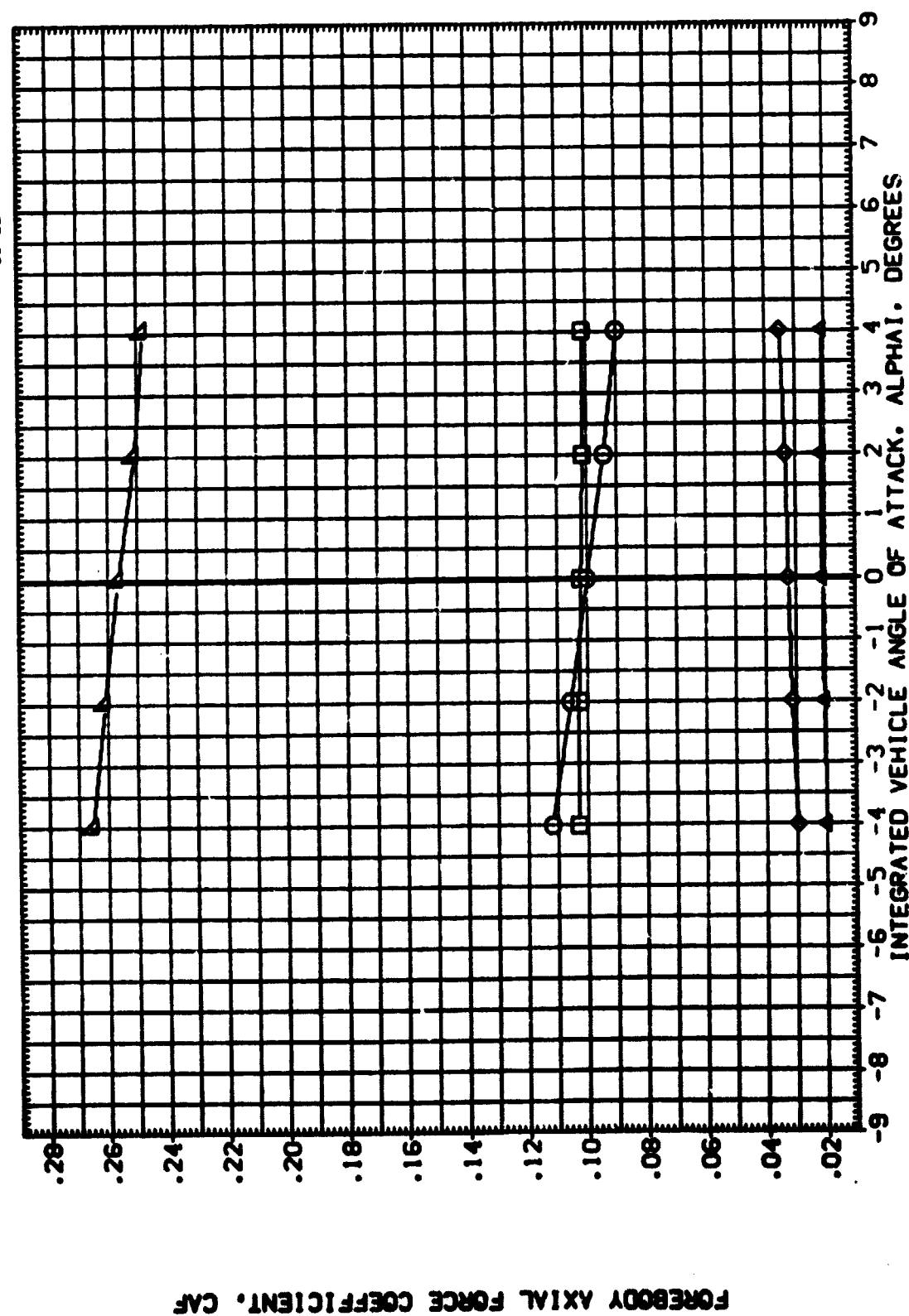


FIG. 15 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, P.2.5 JEV=8/-4

(A)BET.1 = -6.00

DATA SET SYMBOL: (NET108) (NET109) (NET110) (NET111) (NET112) (NET113) (NET114) (NET115)

CONFIGURATION DESCRIPTION: AVE387-019K (AB1) LVAP TANK - ALL HL SEALED AVE387-019K (AB1) LVAP L-SRB - ALL HL SEALED AVE387-019K (AB1) LVAP R-LRB - ALL HL SEALED AVE387-019K (AB1) LVAP INT VEN ALL HL SEALED

REFERENCE INFORMATION: SREF 2690.0000 SO.FT. LREF 1297.0000 IN. BREF 1297.0000 IN. XWRP 976.0000 IN. YWRP 400.0000 IN. ZWRP 400.0000 IN. SCALE 0.0300

ELV-16 8.000 ELV-08 -4.000 MACH 2.500 SPDRK .000

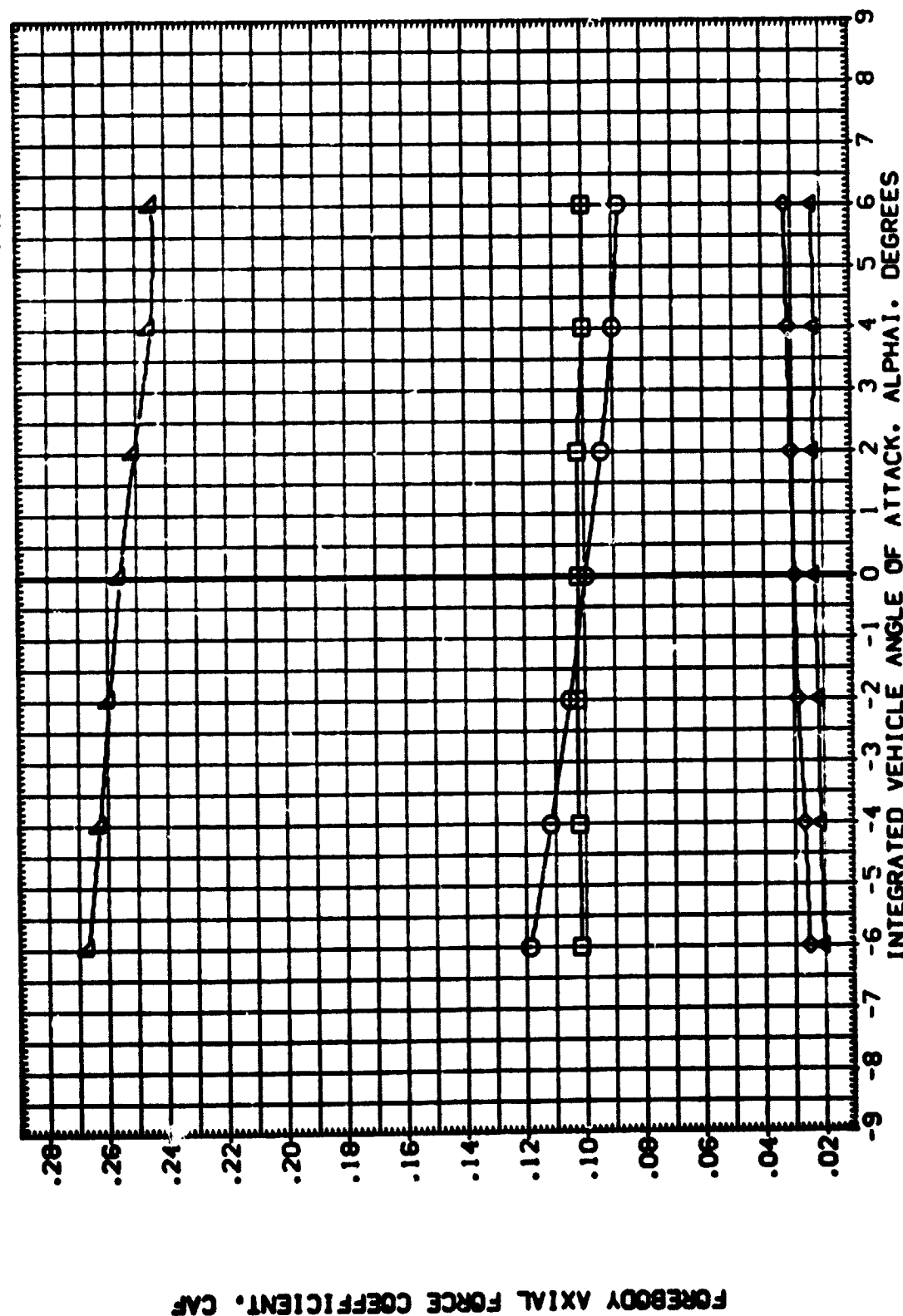


FIG. 15 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4

(B)BETA1 = -4.00

DATA SET SYMBO: (MET028) (MET128) (MET138) (MET138) (MET138)

CONFIGURATION DESCRIPTION: ANE387-019K (AB1) LVAP ORBITER-ALL ML SEALED ANE387-019K (AB1) LVAP TANK - ALL ML SEALED ANE387-019K (AB1) LVAP L-SRB - ALL ML SEALED ANE387-019K (AB1) LVAP R-LRB - ALL ML SEALED ANE387-019K (AB1) LVA INT VEM ALL ML SEALED

ELV-18 8.000 8.000 8.000 8.000 8.000 8.000 8.000

ELV-08 -4.000 -4.000 -4.000 -4.000 -4.000 -4.000 -4.000

MACH 2.500 2.500 2.500 2.500 2.500 2.500 2.500

SPOBKN .000 .000 .000 .000 .000 .000 .000

REFERENCE INFORMATION: SREF 2690.0000 SO.FT. 1297.0000 LREF 1297.0000 IN. 1297.0000 BREF 976.0000 IN. 976.0000 XMRP 400.0000 IN. 400.0000 YMRP 400.0000 IN. 400.0000 ZMRP 400.0000 IN. 400.0000 SCALE .0300

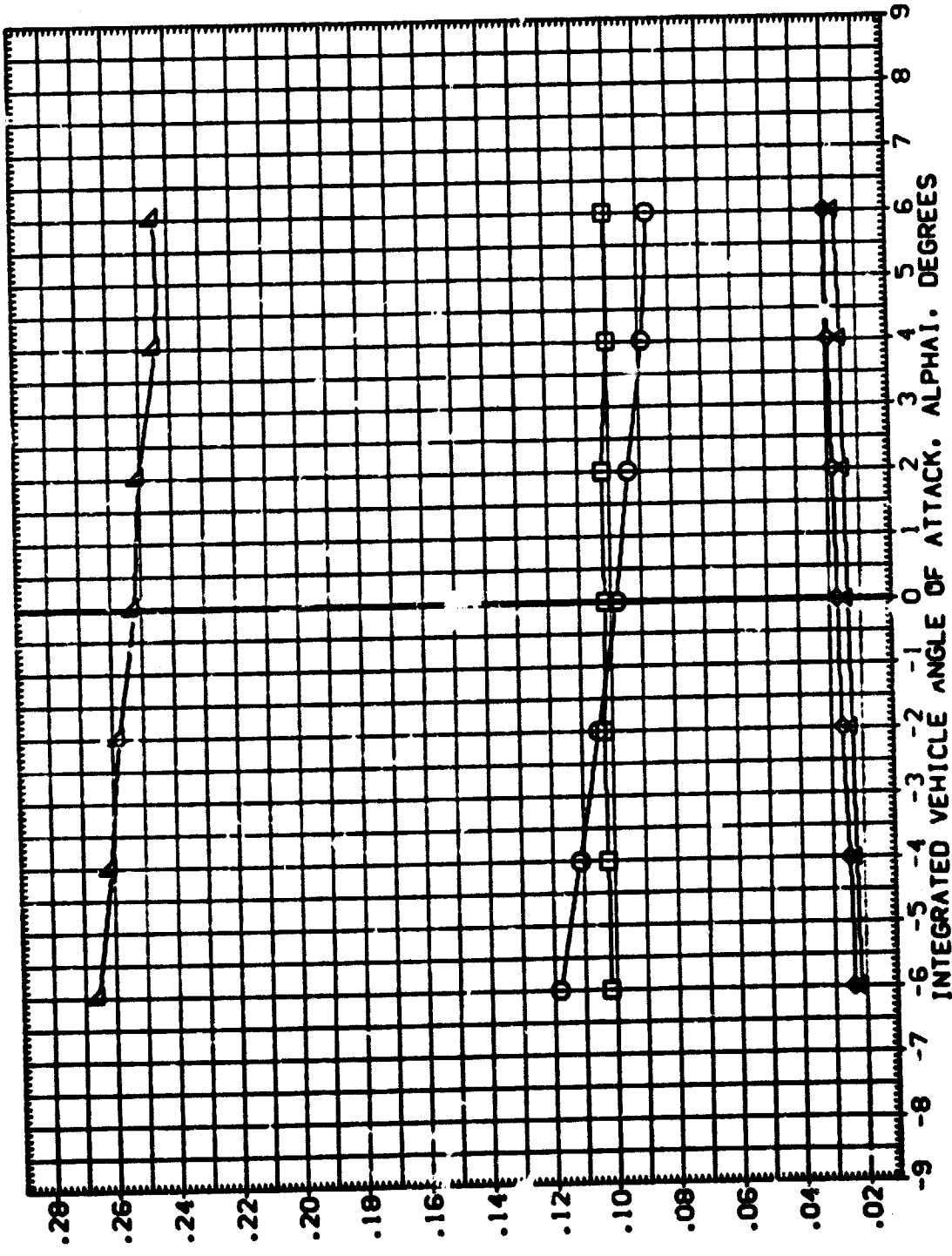


FIG. 15 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4

(C)BET\I = -2.00

DATA SET SYMBOL: (MET028) (MET128) (MET138) (MET138) (MET138)

CONFIGURATION DESCRIPTION: AMESB7-018K1A1) LVAC ORBITER-ALL M. SEALED TANK - ALL M. SEALED L-SPB - ALL M. SEALED R-LNB ALL M. SEALED LVAP INT VEN ALL M. SEALED

ELV-18 ELV-08 MACH SPDRK REFERENCE INFORMATION SQ.FT.

ELV-18	ELV-08	MACH	SPDRK	SREF	LREF	BREF	VRAP	VT	2T	SCALE
8.000	-4.000	2.500	.000	2690.0000	1297.0000	1297.0000	976.0000	400.0000	.0303	

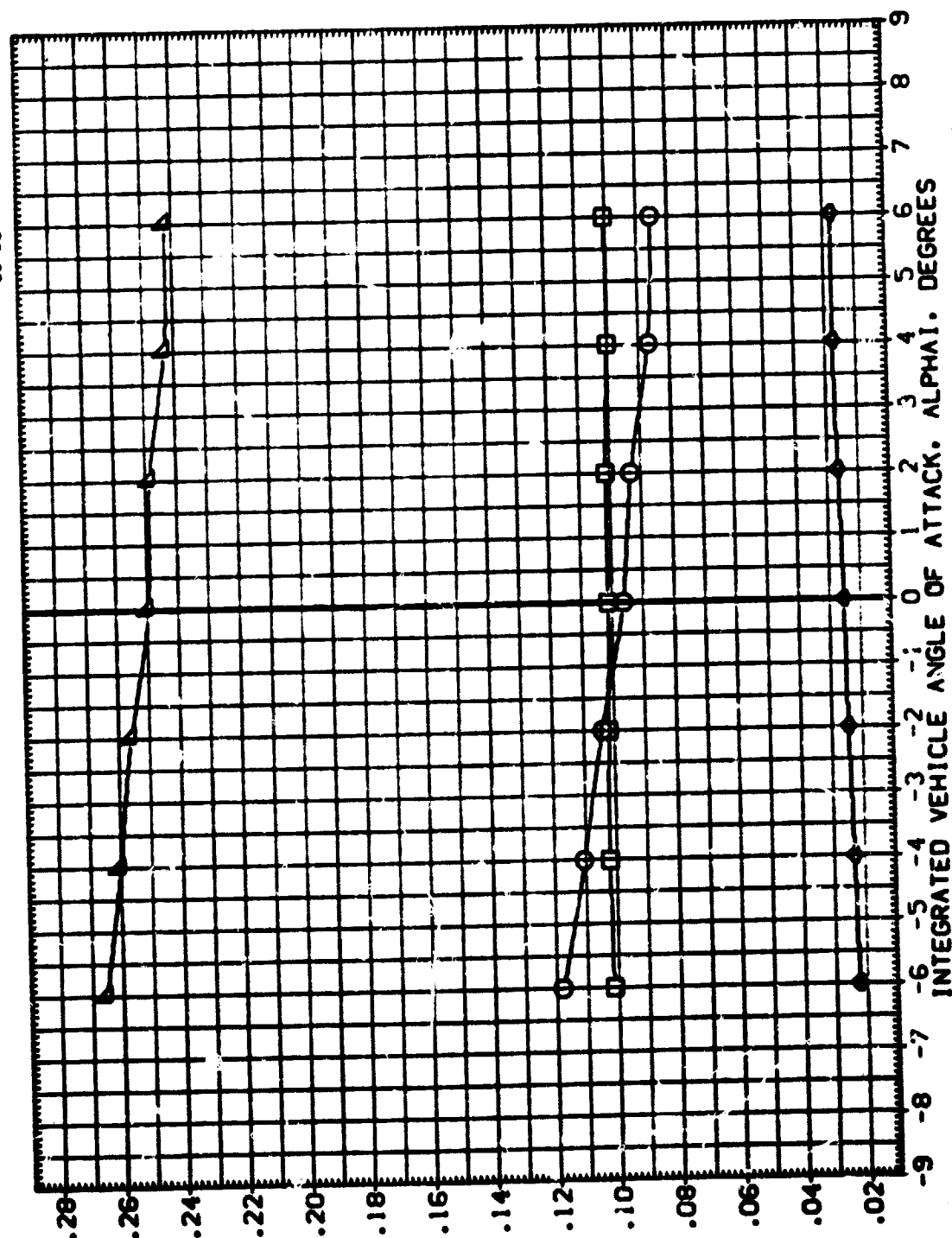


FIG. 15 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(ME1030)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.500	.000	SREF 2690.0000 SO.F.I.
(ME1138)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.500	.000	LREF 1297.0000 IN.
(ME1139)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.500	.000	BREF 1297.0000 IN.
(ME1138)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.500	.000	XMRP 976.0000 IN. XT
(ME1138)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.500	.000	YMRP 400.0000 IN. YT
(ME1138)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.500	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

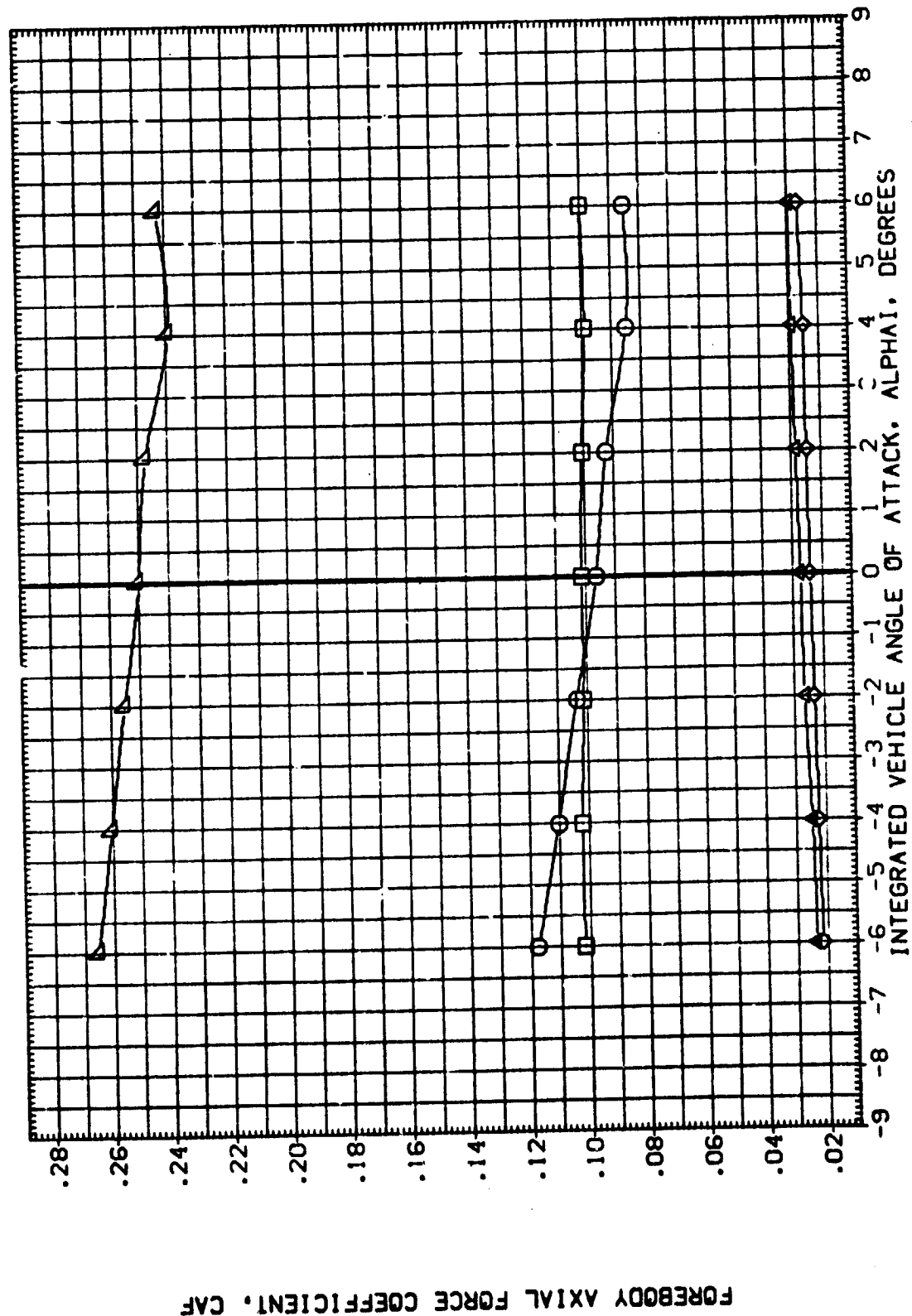
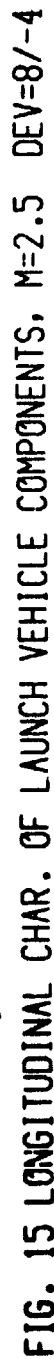


FIG. 15 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4

FOREBODY AXIAL FORCE COEFFICIENT, C_{AF}



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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(MET038)	AMES97-019C(1A81) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.500	.000	SREF 2590.0000 SQ.FT.
(MET138)	AMES97-019C(1A81) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.500	.000	LREF 1297.0000 IN.
(METL38)	AMES97-019C(1A81) LVAP L-SPB - ALL HL SEALED	8.000	-4.000	2.500	.000	BREF 1297.0000 IN.
(METR38)	AMES97-019C(1A81) LVAP R-LRB ALL HL SEALED	8.000	-4.000	2.500	.000	XMRP 976.0000 IN.
(MET138)	AMES97-019C(1A81) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.500	.000	YMRP .0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

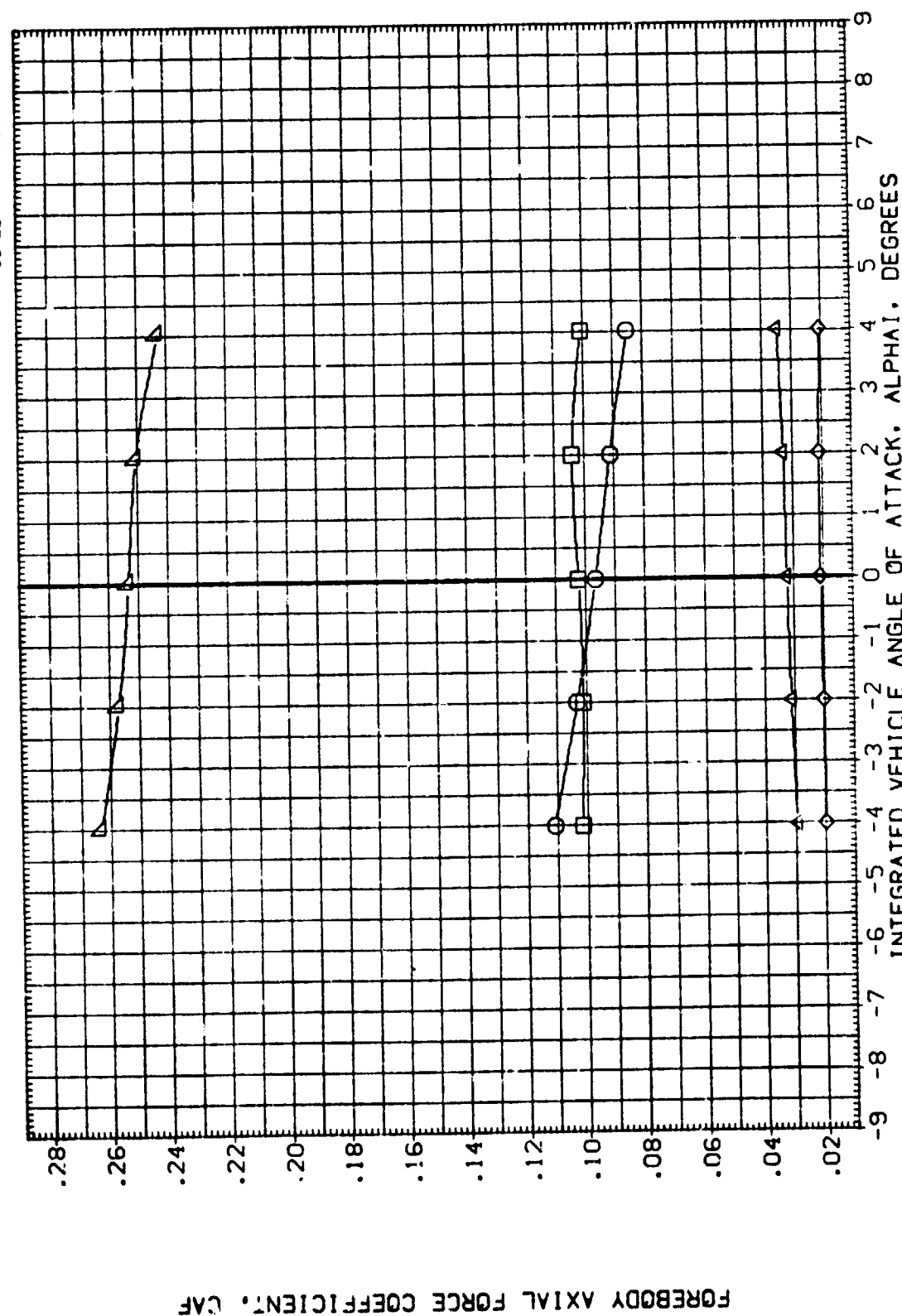


FIG. 15 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(MET038)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.500	.000	SREF 2690.0000 SQ.FT.
(MET138)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.500	.000	LREF 1297.0000 IN.
(METL38)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.500	.000	BREF 1297.0000 IN.
(METR38)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.500	.000	YHRP 976.0000 IN.
(METI38)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.500	.000	ZHRP 400.0000 IN.
						SCALE .0300

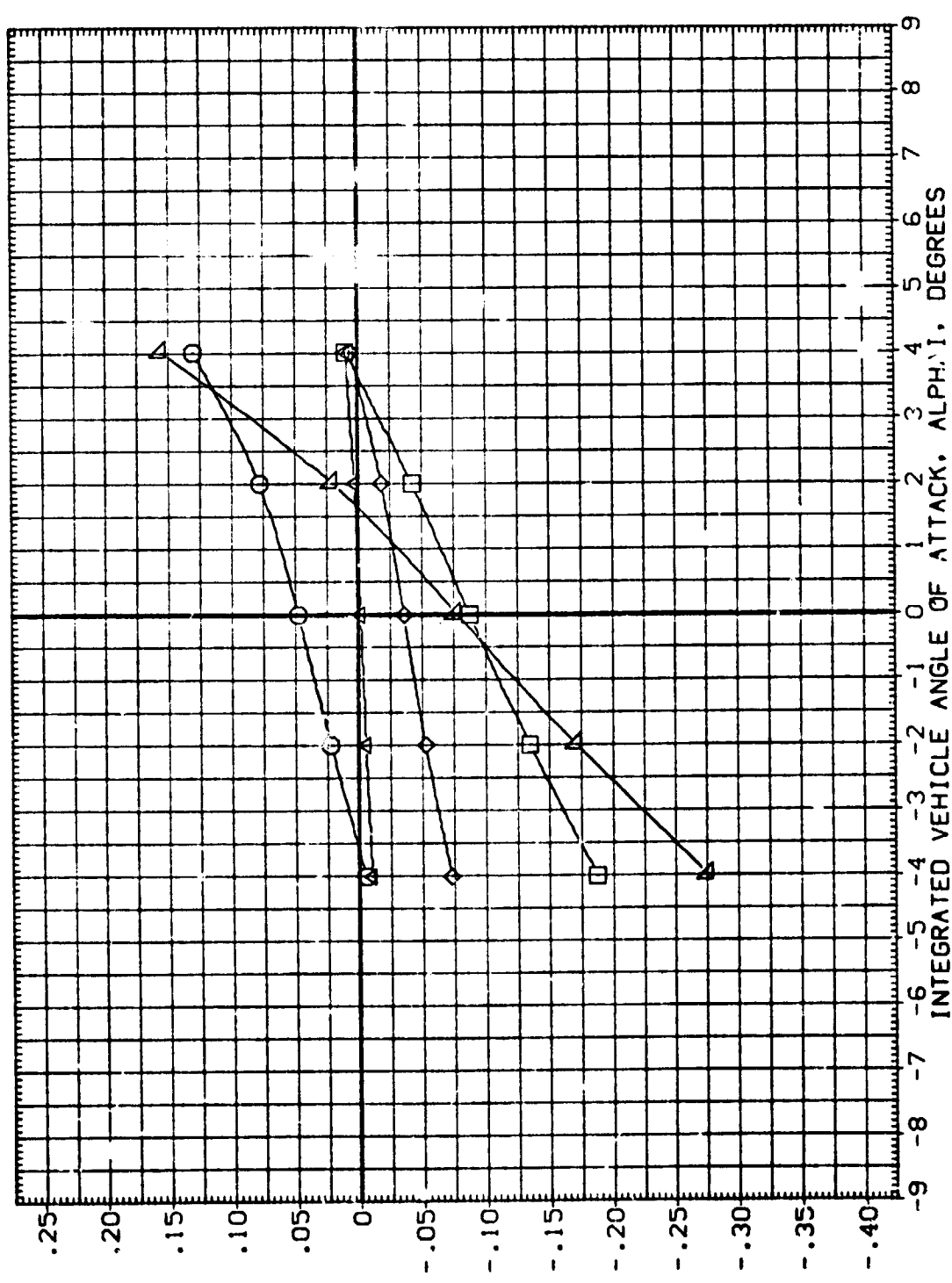


FIG. 15 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4

(A) BET I = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(MET038)	APES97-019(IAB1) LVAP ORBITTER-ALL HL SEALED	8.000	-4.000	2.500	.000	SREF 2690.0000
(MET138)	APES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.500	.000	LREF 1297.0000
(MET138)	APES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.500	.000	BREF 1297.0000
(MET138)	APES97-019(IAB1) LVAP R-LRB ALL HL SEALED	8.000	-4.000	2.500	.000	YMRP 976.0000
(MET138)	APES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.500	.000	ZMRP 400.0000
						SCALE .0300

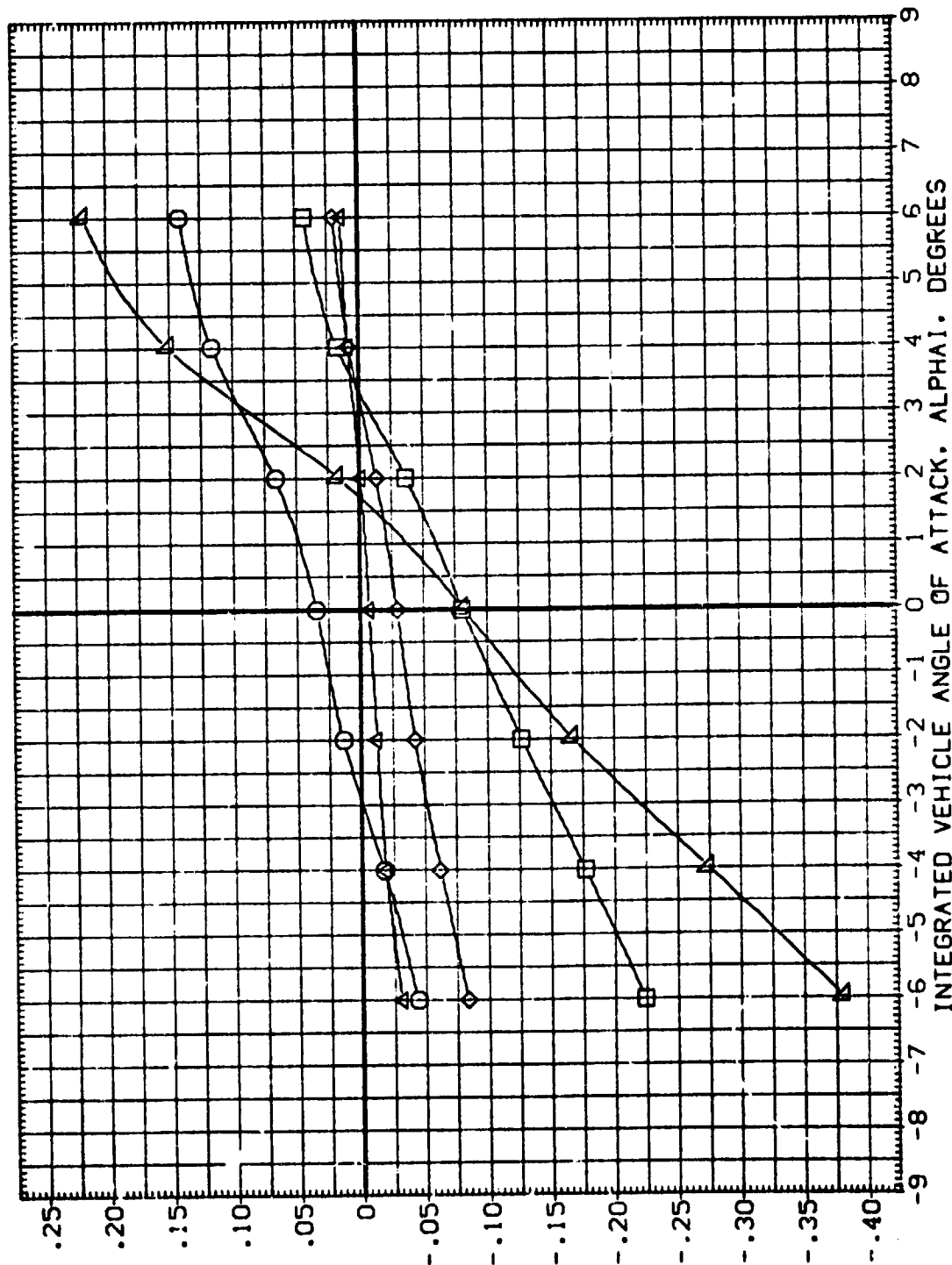


FIG. 15 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4

(B)BET.1 = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(MET038)	AMES97-0191(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.500	.000	SREF 2690.0000 SQ.FT.
(MET138)	AMES97-0191(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.500	.000	LREF 1297.0000 IN.
(MET139)	AMES97-0191(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.500	.000	BREF 1297.0000 IN.
(MET138)	AMES97-0191(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.500	.000	XMRP 976.0000 IN.
(MET138)	AMES97-0191(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.500	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

FOREBODY NORMAL FORCE COEFFICIENT, CNF

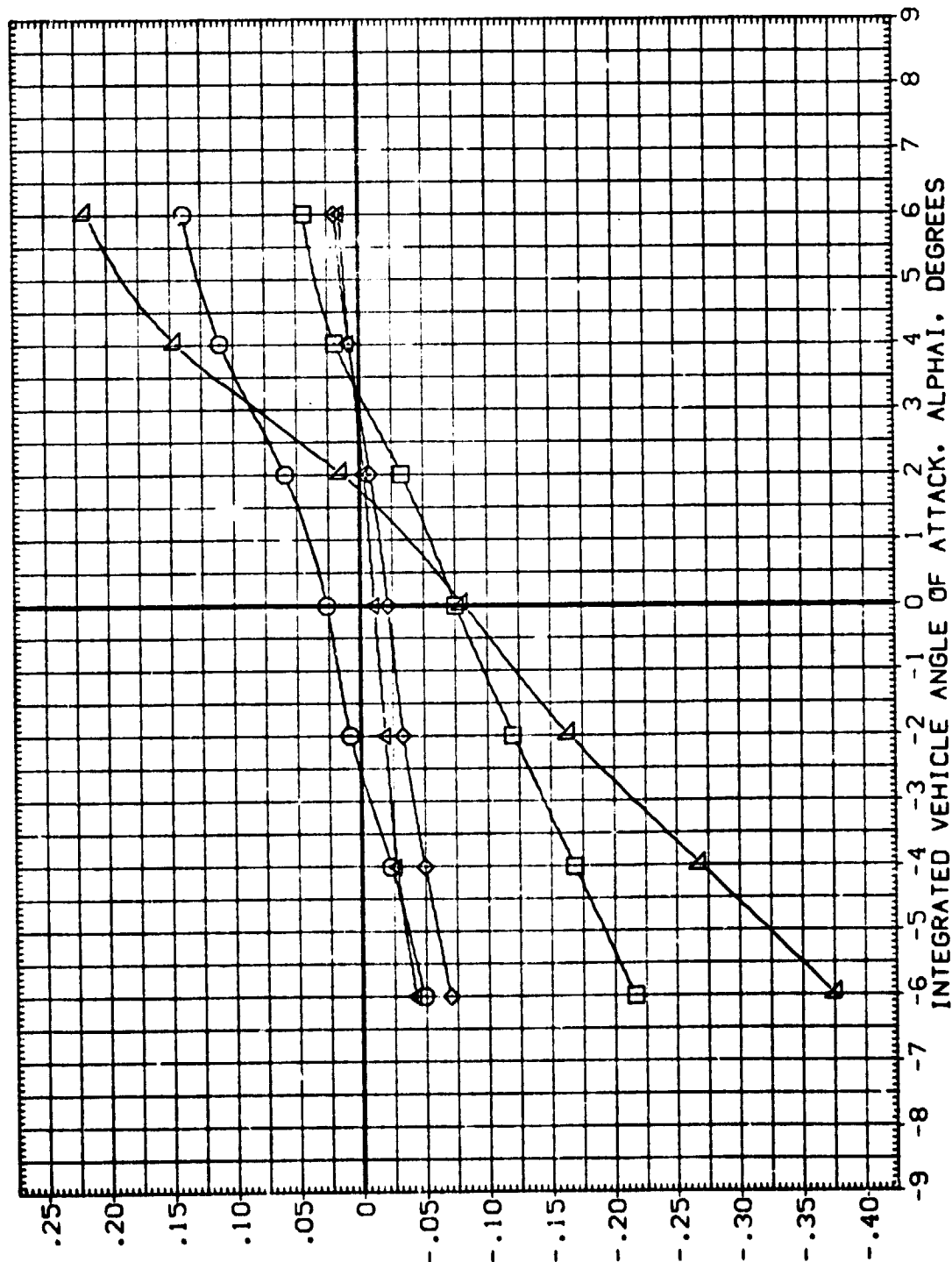


FIG. 15 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4

(C)BETA1 = -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(MET038)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.500	.000	SREF 2690.0000 SQ. FT.
(MET138)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.500	.000	LREF 1297.0000 IN.
(METL38)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.500	.000	BREF 1297.0000 IN.
(METR38)	AMES97-019(IAB1) LVAP R-1RB ALL HL SEALED	8.000	-4.000	2.500	.000	XHRP 976.0000 IN. XT
(METI38)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.500	.000	YHRP .0000 IN. YT
						ZHRP 400.0000 IN. ZT
						SCALE .0300

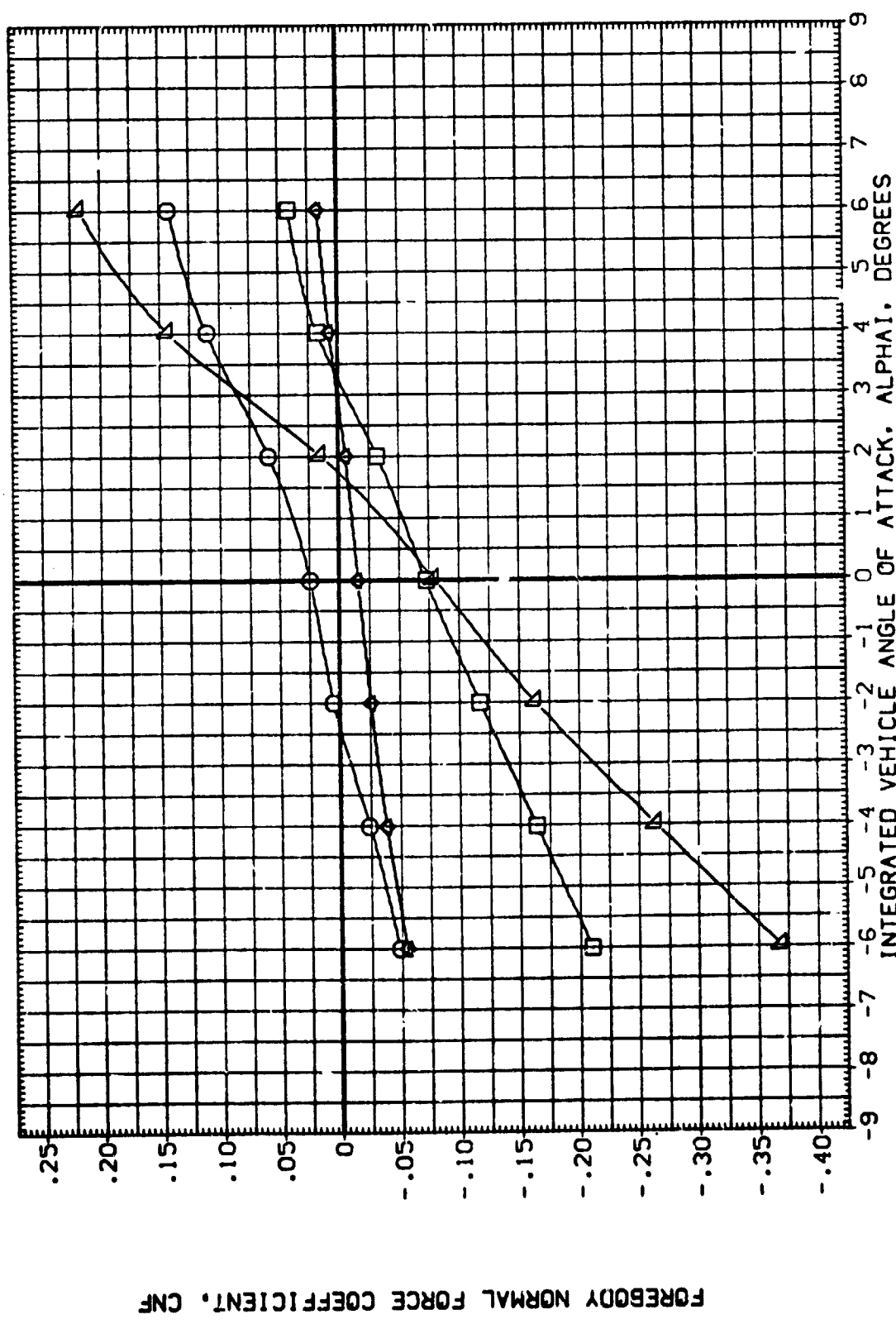


FIG. 15 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4

(D)BET.I = .00

DATA SET SYM-JOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDRBK	REFERENCE INFORMATION
(MET038)	AMES97-019(IAB1) LVAP CRBITTER-ALL HL SEALED	8.000	-4.000	2.500	.000	SREF 2690.0000 SQ.FT.
(MET138)	AMES97-019(IAB1) LVAP TA.WK - ALL HL SEALED	8.000	-4.000	2.500	.000	LREF 1297.0000 IN.
(METL38)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.500	.000	BREF 1297.0000 IN.
(METR38)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.500	.000	XMRP 976.0000 IN.
(METI38)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.500	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

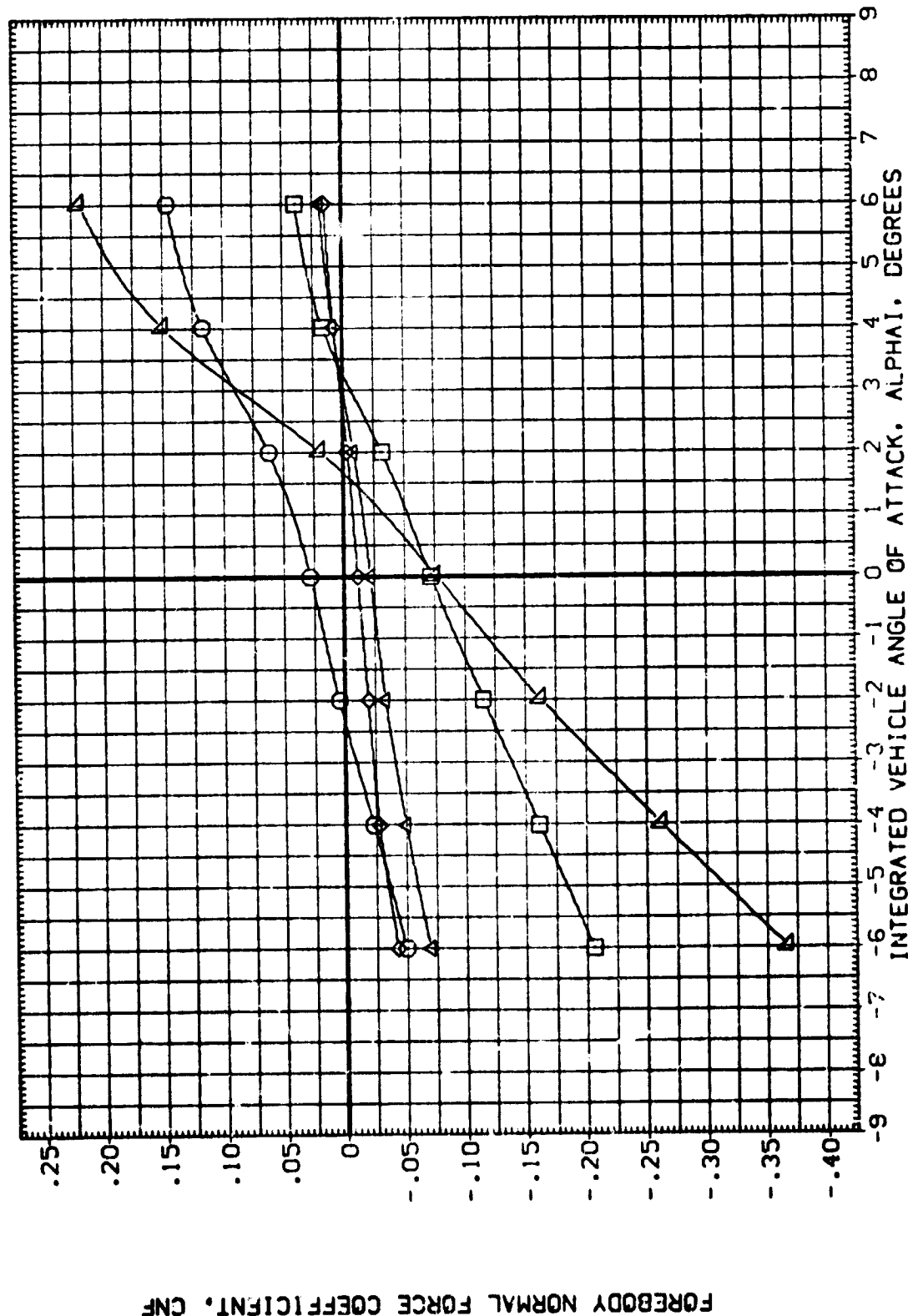


FIG. 15 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4

(E)BET.1 = 2.00

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-03	MACH	SPOBRK	REFERENCE INFORMATION
(MET038)	□	AMES97-0191(A81) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.500	.000	SREF 2690.0000 SQ.FT.
(MET138)	○	AMES97-0191(A81) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.500	.000	LREF 1297.0000 IN.
(METL38)	△	AMES97-0191(A81) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.500	.000	BREF 1297.0000 IN.
(METR38)	◇	AMES97-0191(A81) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.500	.000	XMRP 976.0000 IN. XT
(MET138)	△	AMES97-0191(A81) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.500	.000	YMRP 400.0000 IN. YT
							ZMRP 400.0000 IN. ZT
							SCALE .0300

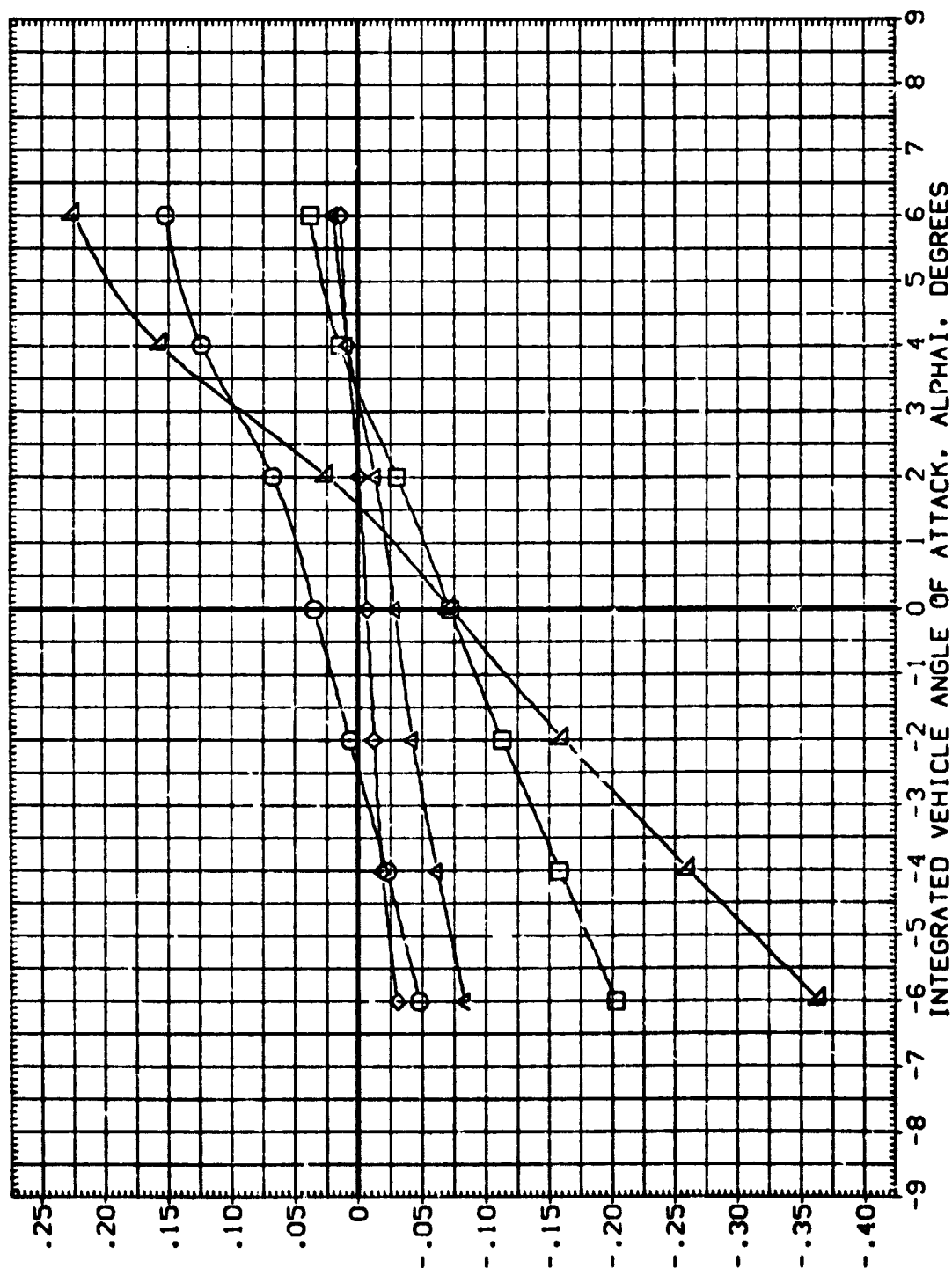
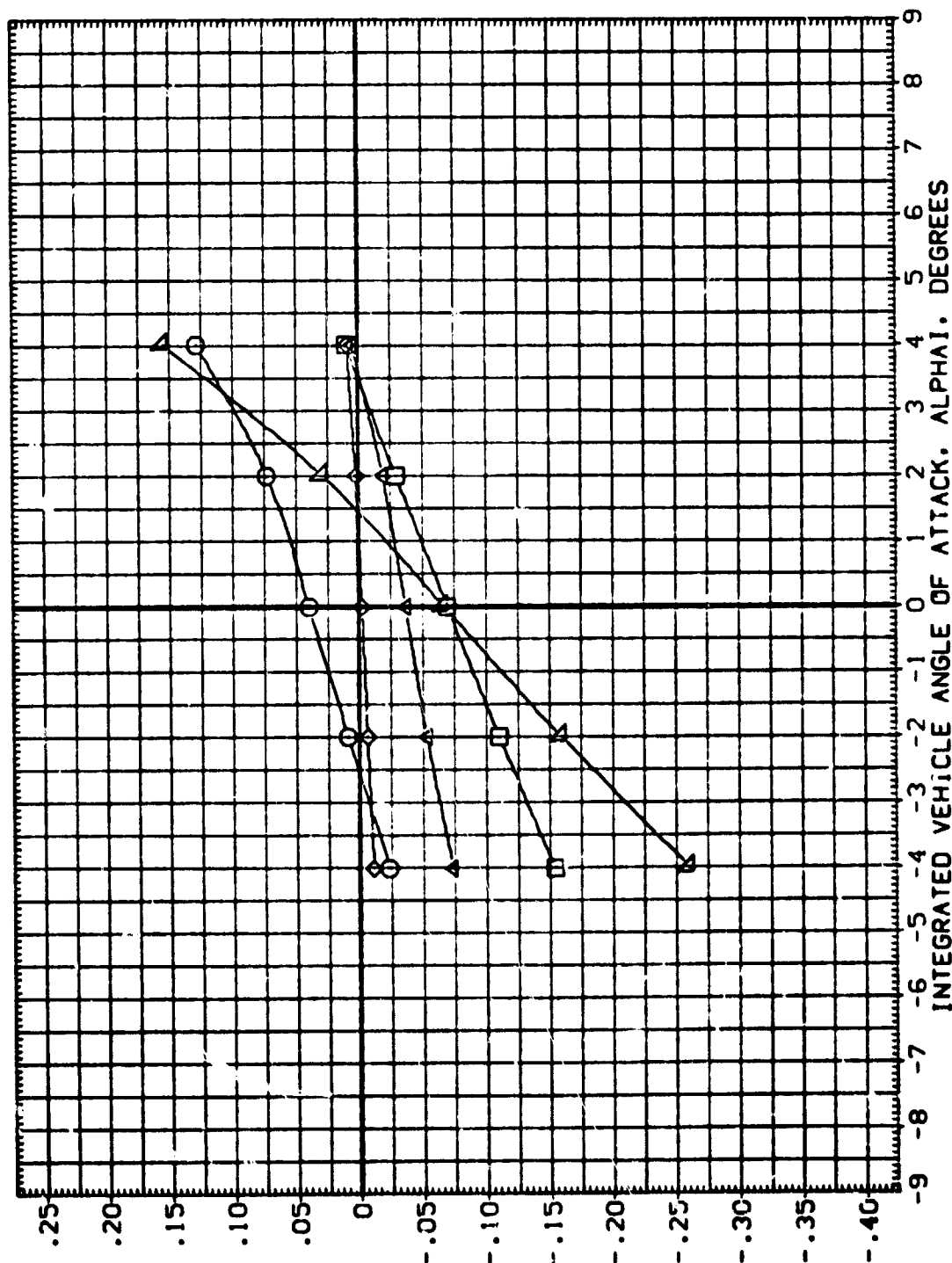


FIG. 15 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS. M=2.5 DEV=8/-4

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(MET030)	AMES97-019(IAB1) LVAP ORBITTER-ALL M SEALED	8.000	-4.000	2.500	.000	SREF 2690.0000 SQ.FT.
(MET130)	AMES97-019(IAB1) LVAP TANK - ALL M SEALED	8.000	-4.000	2.500	.000	LREF 1297.0000 IN.
(METL30)	AMES97-019(IAB1) LVAP L-SRB - ALL M SEALED	8.000	-4.000	2.500	.000	BREF 1297.0000 IN.
(METR30)	AMES97-019(IAB1) LVAP R-LRB - ALL M SEALED	8.000	-4.000	2.500	.000	XMRP 976.0000 IN. XT
(METI30)	AMES97-019(IAB1) LVAP INT VEH ALL M SEALED	8.000	-4.000	2.500	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300



FOREBODY NORMAL FORCE COEFFICIENT, CNF

FIG. 15 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4

(GBET)1 = 6.00

DATA SET SYMBOL	CONF	DESCRIPTION	ELV-1B	ELV-DB	MACH	SPDRK	REFERENCE INFORMATION
(MET038)	AMES97-019(IAB1)	L-VAP ORBITTER-ALL ML SEALED	8.000	-4.000	2.500	.000	SREF 2850.0000 SQ.FT.
(MET138)	AMES97-019(IAB1)	TANK - ALL ML SEALED	8.000	-4.000	2.500	.000	LREF 1297.0000 IN.
(MET138)	AMES97-019(IAB1)	L-SRB - ALL ML SEALED	8.000	-4.000	2.500	.000	BREF 1297.0000 IN.
(MET138)	AMES97-019(IAB1)	L-VAP R-LRB ALL ML SEALED	8.000	-4.000	2.500	.000	XMRP 976.0000 IN. XT
(MET138)	AMES97-019(IAB1)	L-VAP INT VEH ALL ML SEALED	8.000	-4.000	2.500	.000	YMRP 400.0000 IN. YT
							ZMRP .0300
							SCALE

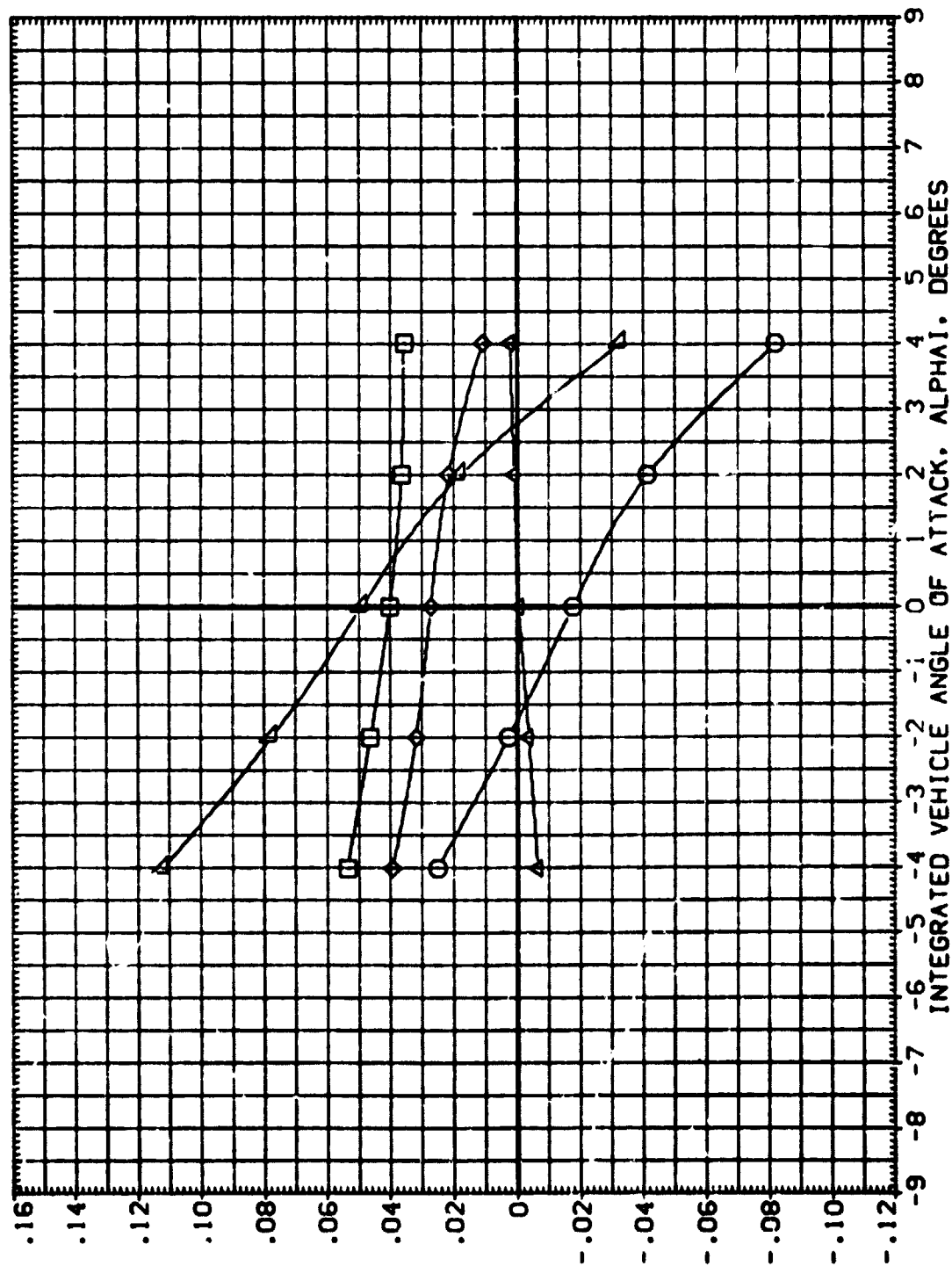


FIG. 15 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4

(A)BET.1 = -6.00

DATA SET SYMOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDRK	REFERENCE INFORMATION
(MET038)	ANE897-019(IAB1) LVAP ORBITTER-ALL ML SEALED	8.000	-4.000	2.500	.000	SREF 2690.0000 SO.FT.
(MET178)	ANE897-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	-4.000	2.500	.000	LREF 1297.0000 IN.
(MET178)	ANE897-019(IAB1) LVAP L-SRB - ALL ML SEALED	8.000	-4.000	2.500	.000	BREF 1297.0000 IN.
(MET178)	ANE897-019(IAB1) LVAP R-LRB - ALL ML SEALED	8.000	-4.000	2.500	.000	XMRP 976.0000 IN.
(MET178)	ANE897-019(IAB1) LVAP INT VEH ALL ML SEALED	8.000	-4.000	2.500	.000	YMRP .0000 IN.
(MET178)						ZMRP .0000 IN.
						SCALE .0300

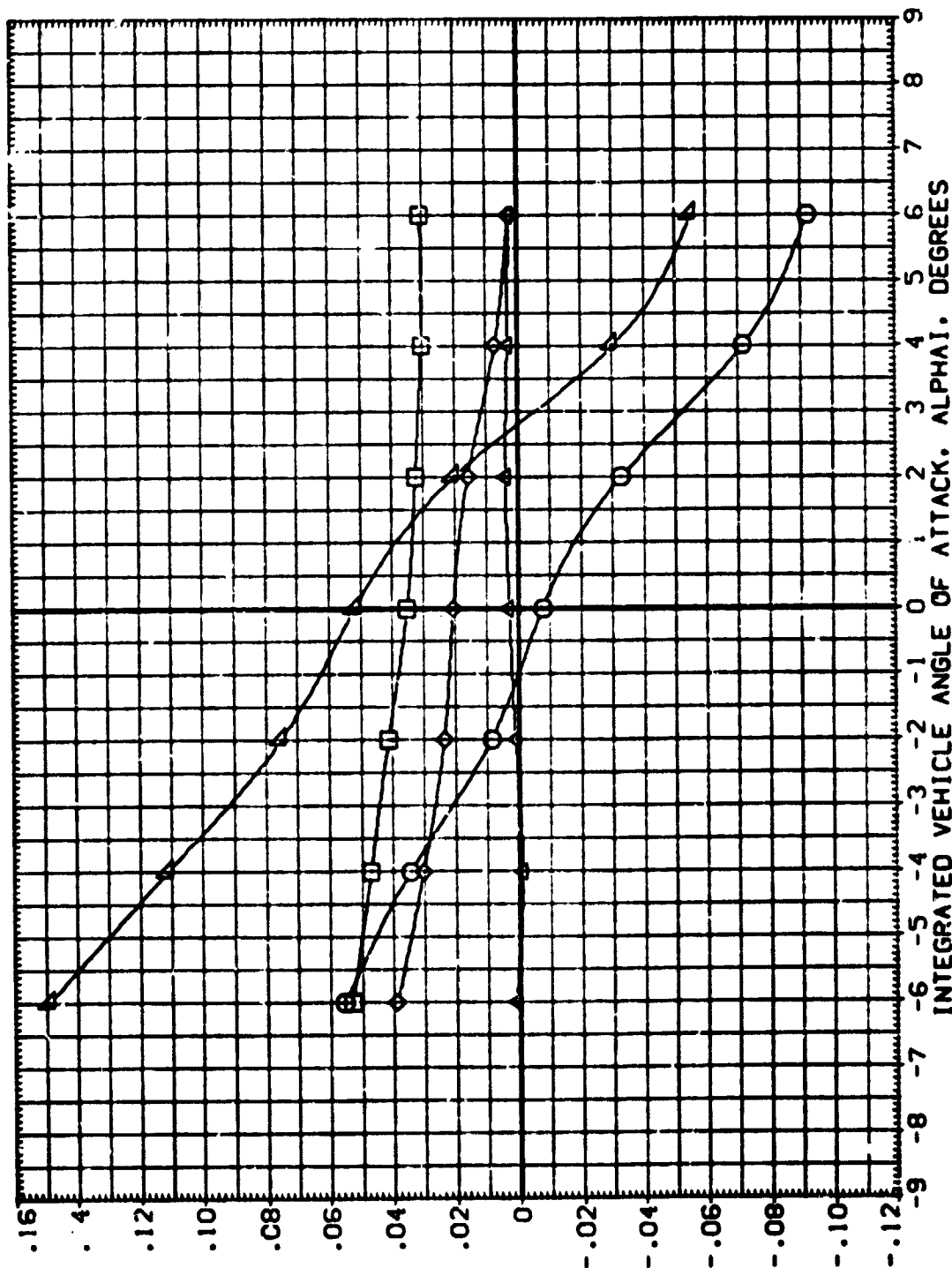


FIG. 15 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS. M=2.5 DEV=8/-4

(B)BET.1 = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(MET030)	AMES97-019(1A1) LVAP ORBITER-ALL ML SEALED	8.000	-4.000	2.500	.000	REF 2690.0000 SO.FT.
(MET130)	AMES97-019(1A1) LVAP TANK - ALL ML SEALED	8.000	-4.000	2.500	.000	REF 1237.0000 IN.
(MET130)	AMES97-019(1A1) LVAP L-SRB - ALL ML SEALED	8.000	-4.000	2.500	.000	REF 1237.0000 IN.
(MET130)	AMES97-019(1A1) LVAP R-LRB - ALL ML SEALED	8.000	-4.000	2.500	.000	REF 976.0000 IN.
(MET130)	AMES97-019(1A1) LVAP INT VEH ALL ML SEALED	8.000	-4.000	2.500	.000	REF .0000 IN.
						REF 400.0000 IN.
						REF .0300 IN.

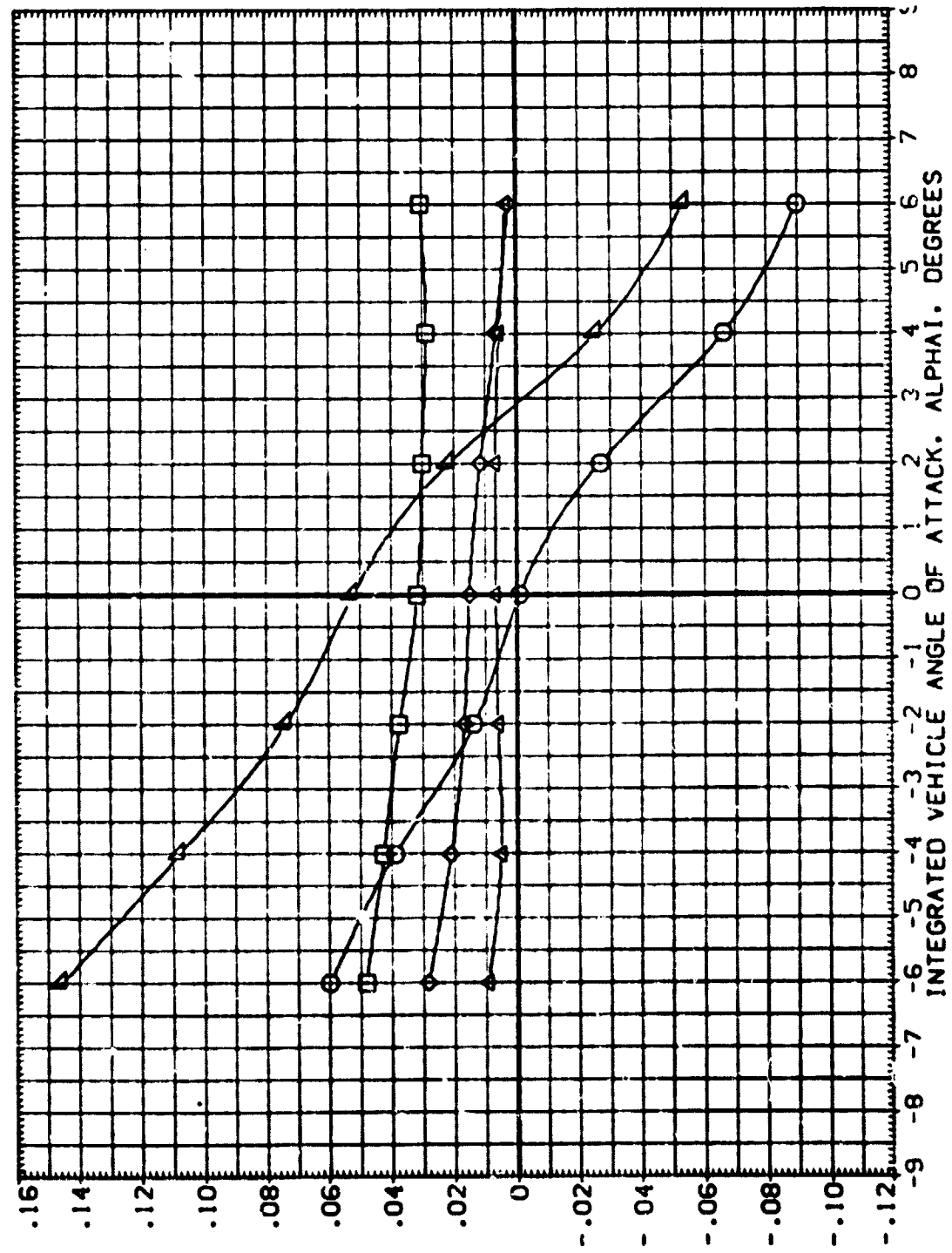


FIG. 15 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4

(C)BET.1 = -2.00

DATA SET SYMBOL: (MET138) (MET138) (MET138) (MET138) (MET138)

CONFIGURATION DESCRIPTION: ORBITER-ALL ML SEALED
TANK - ALL ML SEALED
L-SRB - ALL ML SEALED
R-SRB - ALL ML SEALED
INT VEM ALL ML SEALED

ELV-18: 8.000 8.000 8.000 8.000 8.000 8.000 8.000 8.000

ELV-08: -4.000 -4.000 -4.000 -4.000 -4.000 -4.000 -4.000 -4.000

MACH: 2.500 2.500 2.500 2.500 2.500 2.500 2.500 2.500

SPOBRK: .000 .000 .000 .000 .000 .000 .000 .000

REFERENCE INFORMATION: SREF 2690.0000 SO.FT. 2690.0000
LREF 1297.0000 IN. 1297.0000
BREF 1297.0000 IN. 1297.0000
XMRP 975.0000 IN. 975.0000
YMRP 400.0000 IN. 400.0000
ZMRP .0300 IN. .0300

SCALE

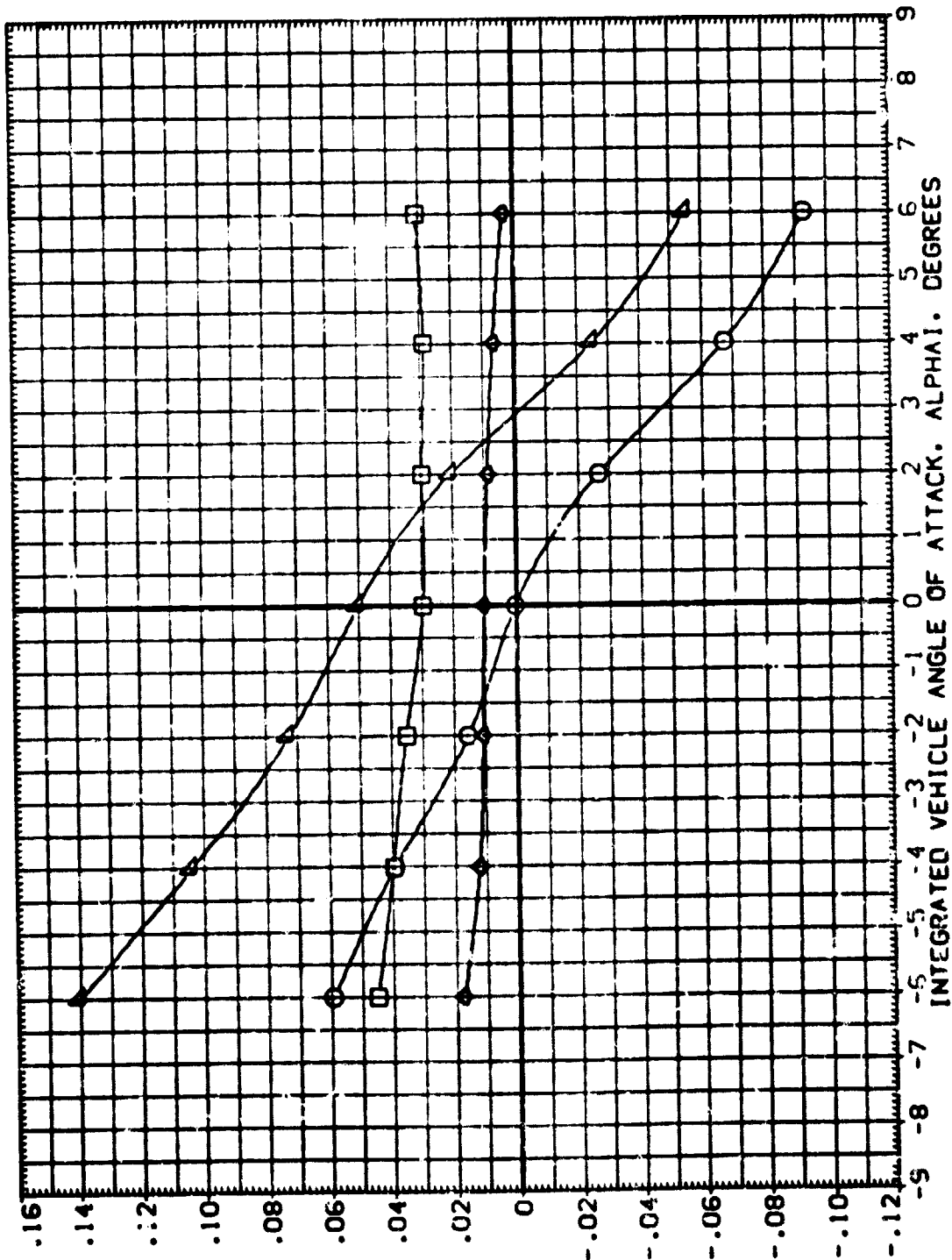
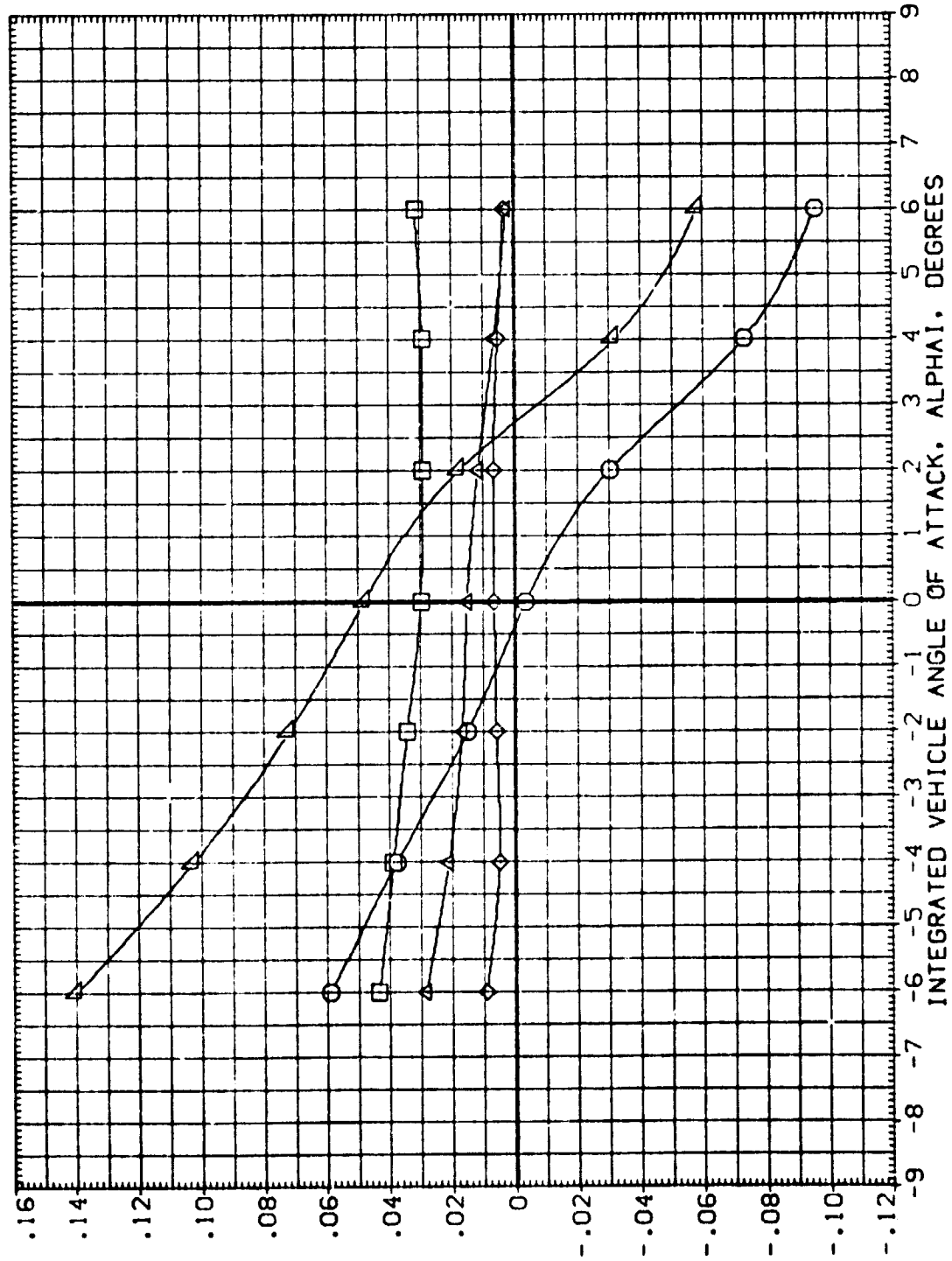


FIG. 15 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4

(O)BET.1 = .00

CG

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(MET038)	AMES97-019(1A81) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.500	.000	SREF 2690.0000 SQ.FT.
(MET138)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.500	.000	SREF 1297.0000 IN.
(METL38)	AMES97-019(1A81) LVAP L-GRB - ALL HL SEALED	8.000	-4.000	2.500	.000	SREF 1297.0000 IN.
(METR38)	AMES97-019(1A81) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.500	.000	XMRP 976.0000 IN. XT
(MET138)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.500	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300



FOREBODY PITCHING MOMENT COEFFICIENT, CLMF

FIG. 15 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4

(E)BET.1 = 2.00

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(MET038)	□	AMES97-019(IAB1) LVAP ORBITTER-ALL ML SEALED	8.000	-4.000	2.500	.000	SREF 2690.0000 SO.FT.
(MET138)	×	AMES97-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	-4.000	2.500	.000	LREF 1297.0000 IN.
(METL38)	△	AMES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	8.000	-4.000	2.500	.000	BREF 1297.0000 IN.
(METR38)	◇	AMES97-019(IAB1) LVAP R-LRB ALL ML SEALED	8.000	-4.000	2.500	.000	XMRP 976.0000 IN. XT
(MET138)	△	AMES97-019(IAB1) LVAP INT VEH ALL ML SEALED	8.000	-4.000	2.500	.000	YMRP .0000 IN. YT
							ZMRP 400.0000 IN. ZT
							SCALE .0300

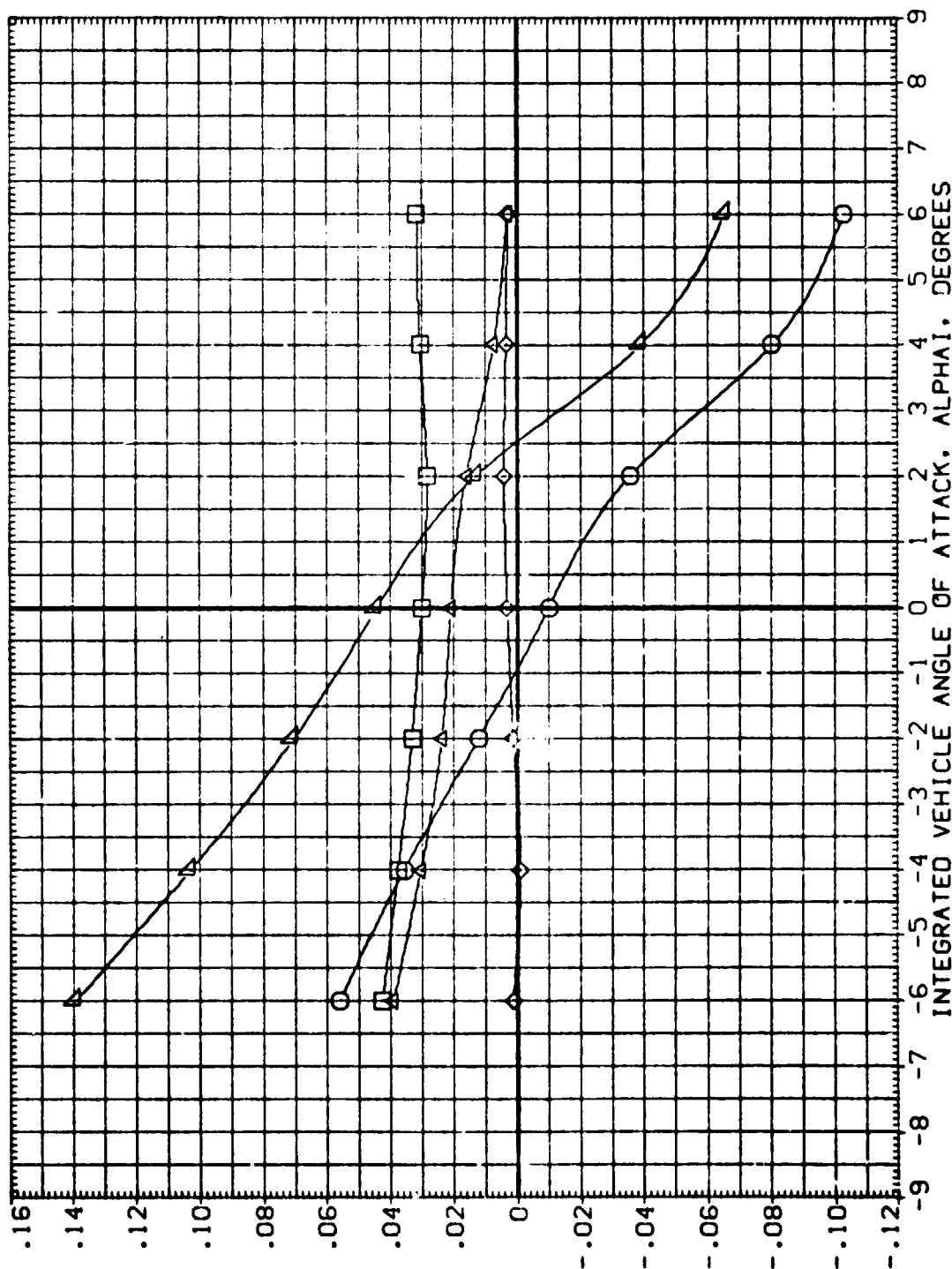


FIG. 15 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4

(F)BET 1 = 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(MET038)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.500	.000	SREF 2690.0000 SQ.FT.
(MET138)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.500	.000	LREF 1297.0000 IN.
(MET139)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.500	.000	BREF 1297.0000 IN.
(MET138)	AMES97-019(IAB1) LVAP R-SRB - ALL HL SEALED	8.000	-4.000	2.500	.000	XMRP 976.0000 IN.
(MET138)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.500	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

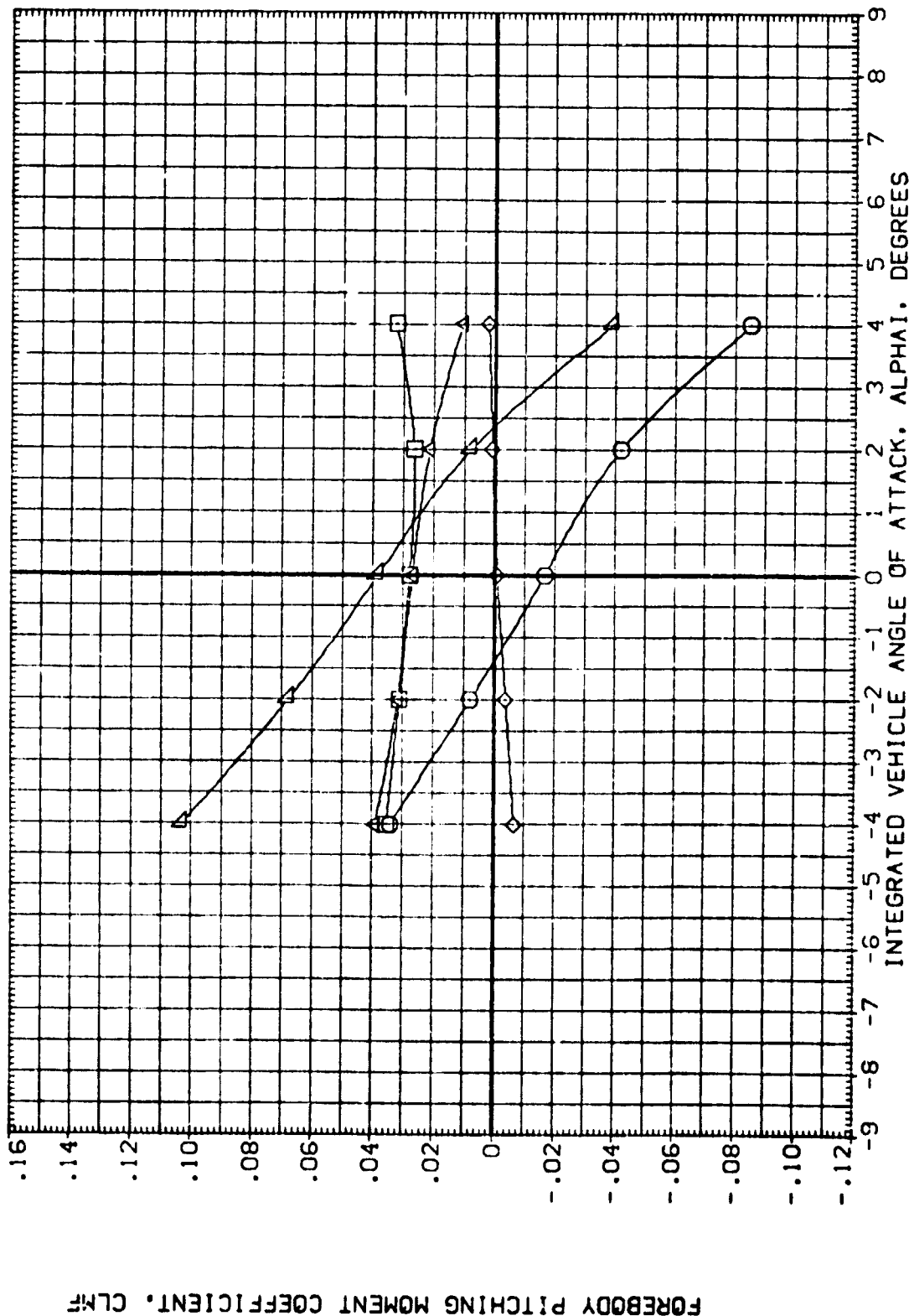


FIG. 15 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=2.5$ DEV=8/-4

(G)BET.I = 6.00

FOREBODY NORMAL FORCE COEFFICIENT, CNF

DATA SET SYMBOL
(MET038)
(MET138)
(METL38)
(METR38)
(MET138)

CONFIGURATION DESCRIPTION
ORBITER-ALL ML SEALED
TANK - ALL ML SEALED
L-SRB - ALL ML SEALED
R-LRB - ALL ML SEALED
LVAP INT VEH ALL ML SEALED

ELV-18 ELV-08 MACH SPDBRK REFERENCE INFORMATION
8.000 -4.000 2.500 .000 SREF 2690.0000 SQ.FT.
8.000 -4.000 2.500 .000 LREF 1297.0000 IN.
8.000 -4.000 2.500 .000 BREF 1297.0000 IN.
8.000 -4.000 2.500 .000 XMRP 976.0000 IN. XT
8.000 -4.000 2.500 .000 YMRP 400.0000 IN. YT
8.000 -4.000 2.500 .000 ZMRP 400.0000 IN. ZT
SCALE .0300

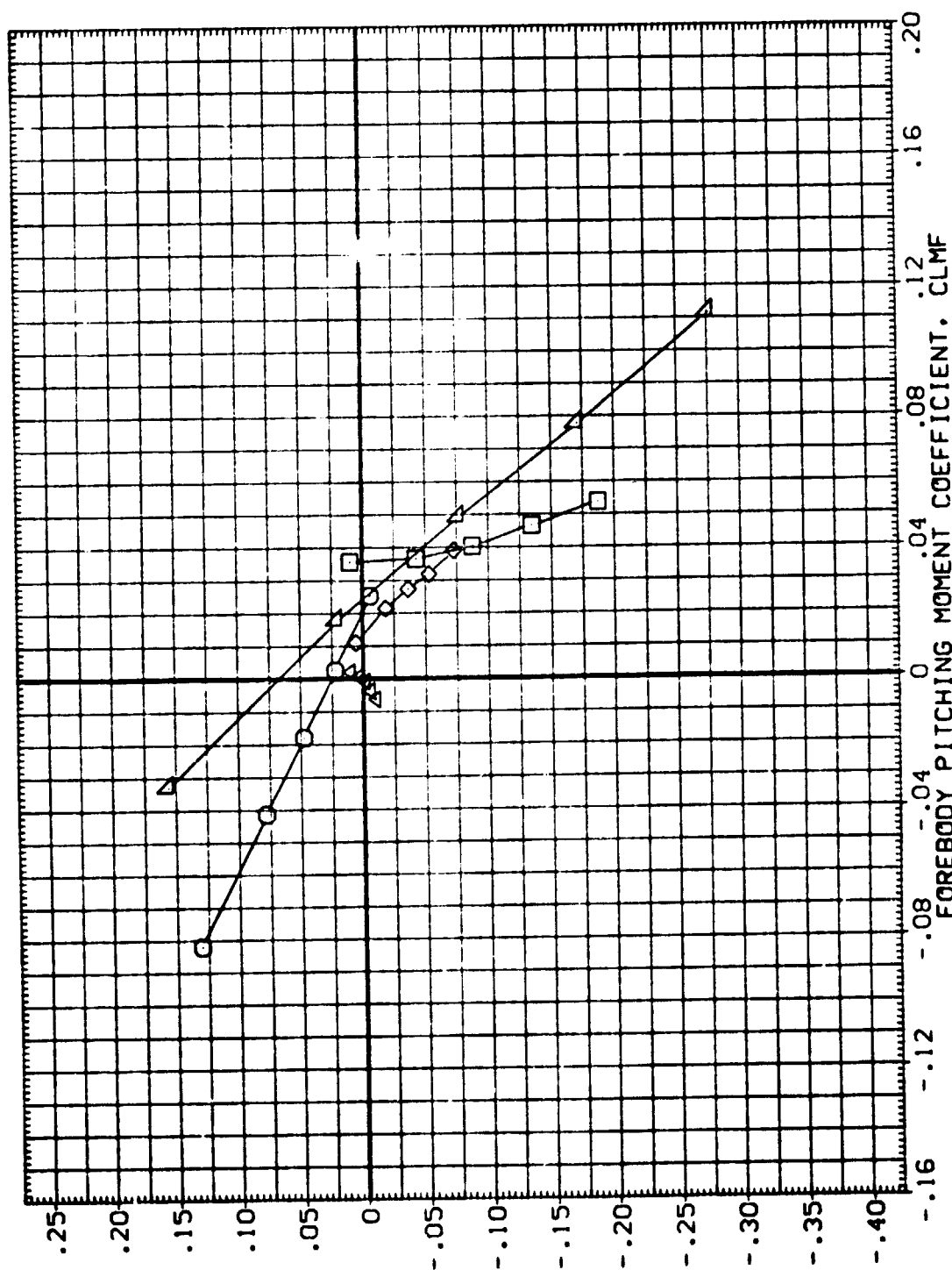


FIG. 15 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4

(A)BETA1 = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-LB	ELV-RB	MACH	SPDRK	REFERENCE INFORMATION
(MET038)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.500	.000	SREF 2690.0000 SQ.FT.
(MET138)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.500	.000	LREF 1297.0000 IN.
(MET138)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.500	.000	BREF 1297.0000 IN.
(MET138)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.500	.000	YMRP 976.0000 IN. XT
(MET138)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.500	.000	YMRP 976.0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

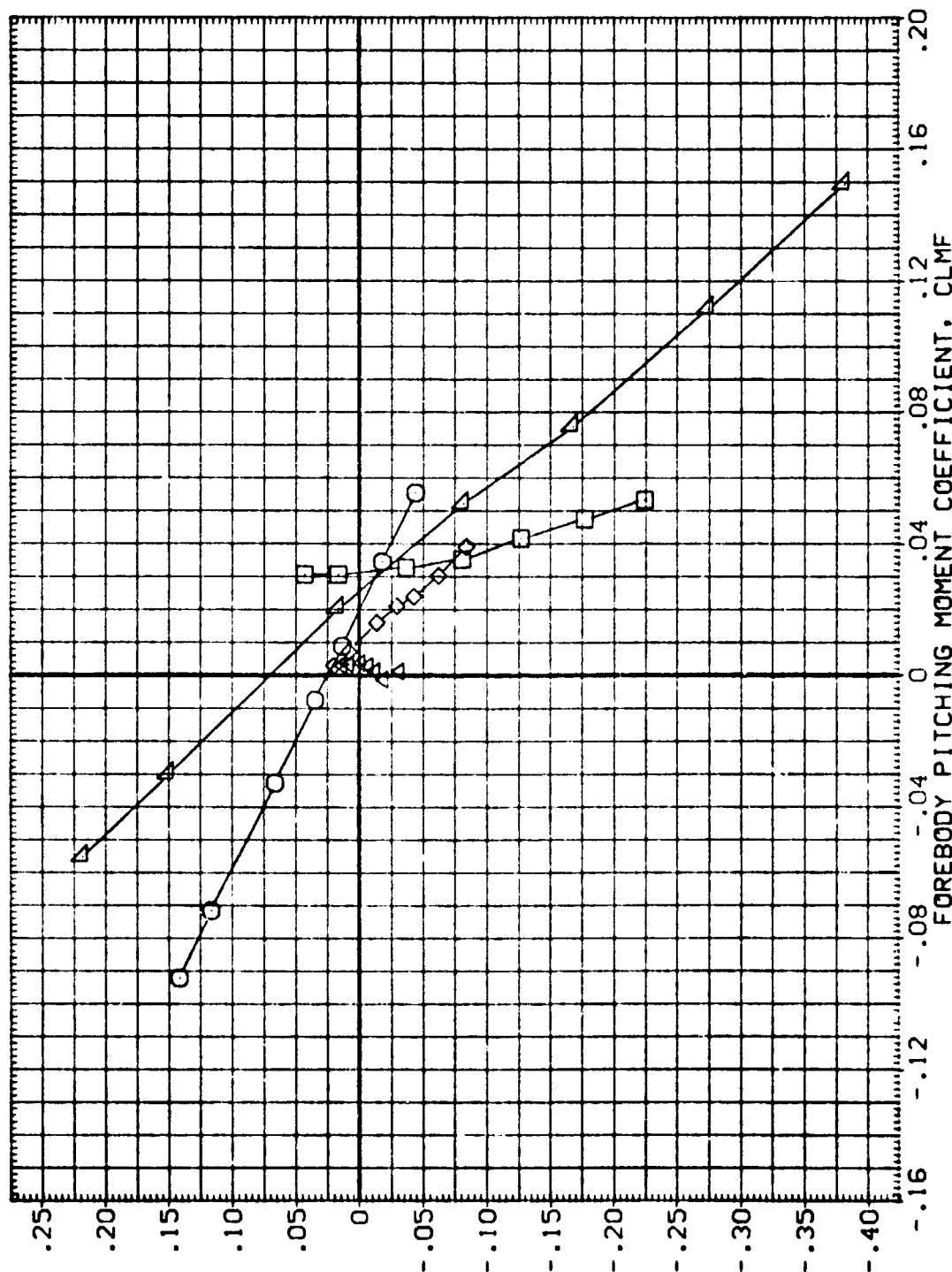


FIG. 15 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4

(B)BET.1 = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(MET038)	AMES97-019(1A81) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.500	.000	SREF 2690.0000 SQ.FT.
(MET138)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.500	.000	LREF 1297.0000 IN.
(METL38)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.500	.000	BREF 1297.0000 IN.
(METR38)	AMES97-019(1A81) LVAP R-LRB ALL HL SEALED	8.000	-4.000	2.500	.000	XMRP 976.0000 IN.
					.000	YMRP 400.0000 IN.
					.000	ZMRP 400.0000 IN.
						SCALE .0300

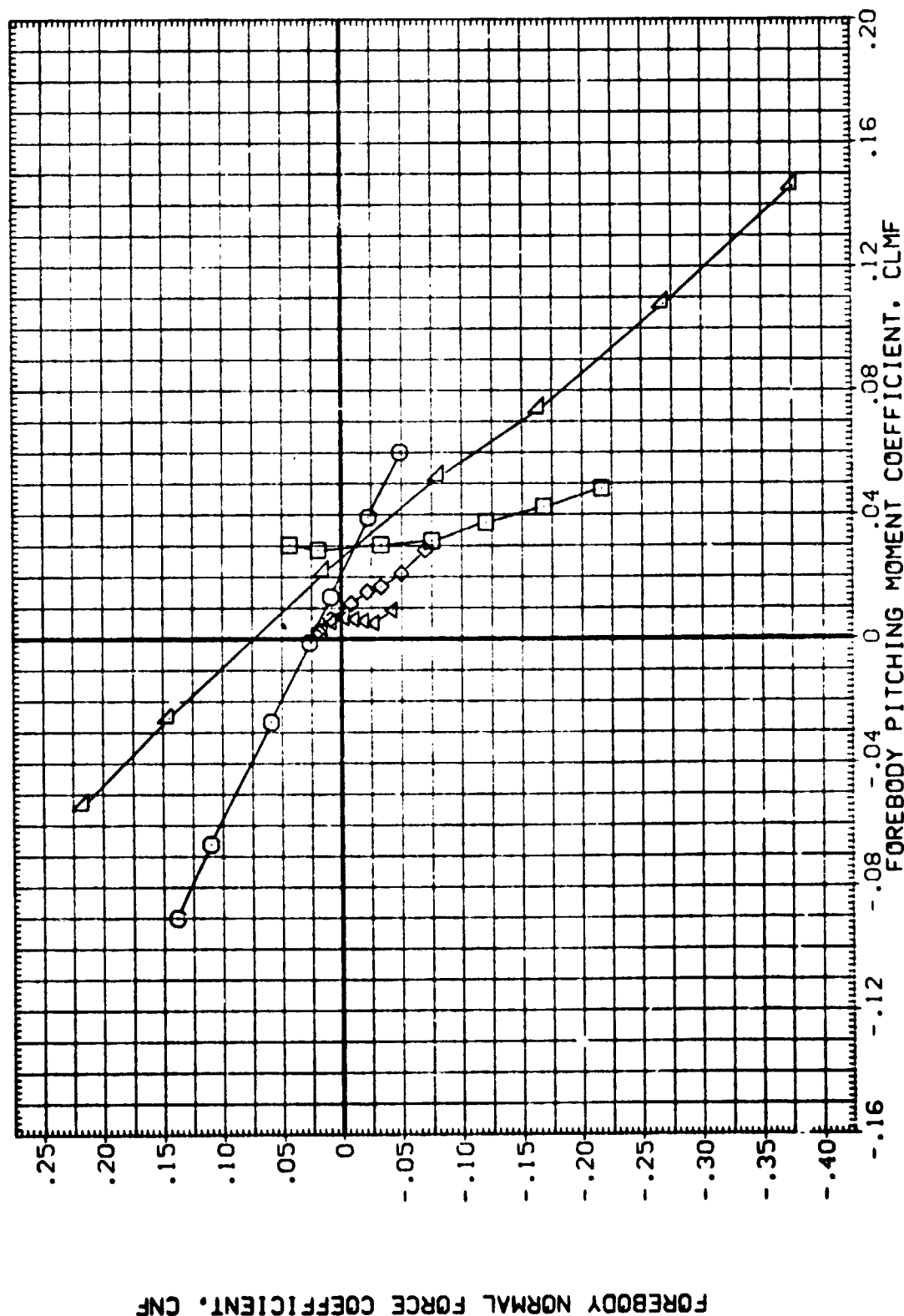


FIG. 15 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4
(C)BET.1 = -2.00

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(MET038)	□	AVES97-0191(IAB1) LVAP	8.000	-4.000	2.500	.000	SREF 2690.0000 SQ.FT.
(MET138)	○	AVES97-0191(IAB1) LVAP	8.000	-4.000	2.500	.000	LREF 1297.0000 IN.
(METL38)	△	AVES97-0191(IAB1) LVAP	8.000	-4.000	2.500	.000	BREF 1297.0000 IN.
(METR38)	◇	AVES97-0191(IAB1) LVAP	8.000	-4.000	2.500	.000	XMRP 976.0000 IN. XT
(MET138)	◇	AVES97-0191(IAB1) LVAP	8.000	-4.000	2.500	.000	YMRP 400.0000 IN. YT
							SCALE .0300

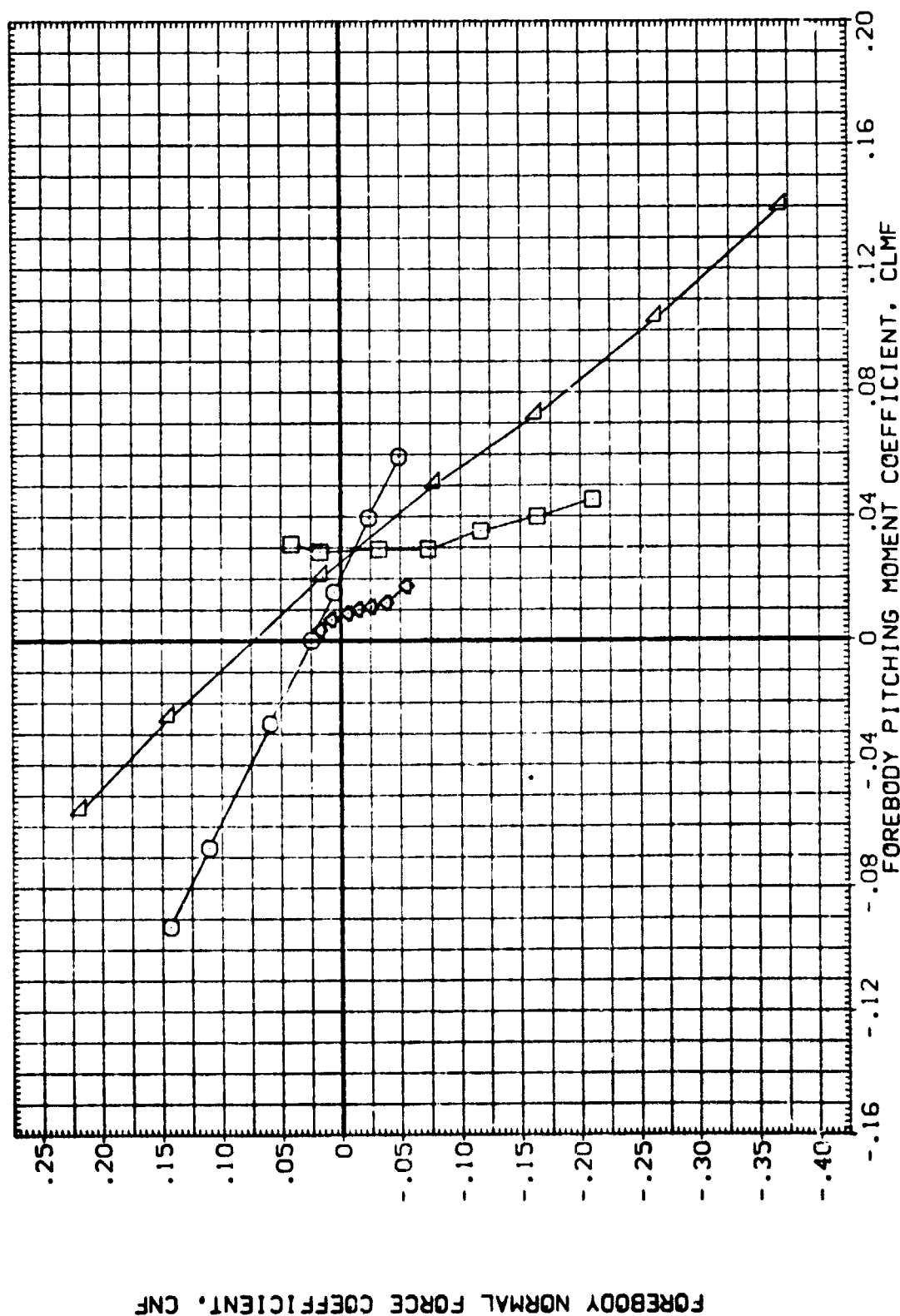


FIG. 15 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4

(D)BET.1 = .00

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(MET138)	□	ORBITER-ALL ML SEALED	8.000	-4.000	2.500	.000	SREF 2690.0000 SQ.FT.
(MET138)	□	TANK - ALL ML SEALED	8.000	-4.000	2.500	.000	LREF 1297.0000 IN.
(MET138)	□	L-SRB - ALL ML SEALED	8.000	-4.000	2.500	.000	BREF 1297.0000 IN.
(MET138)	□	R-LRB - ALL ML SEALED	8.000	-4.000	2.500	.000	XMRP 976.0000 IN.
(MET138)	□	INT VEH ALL ML SEALED	8.000	-4.000	2.500	.000	YMRP 400.0000 IN.
							SCALE .0300

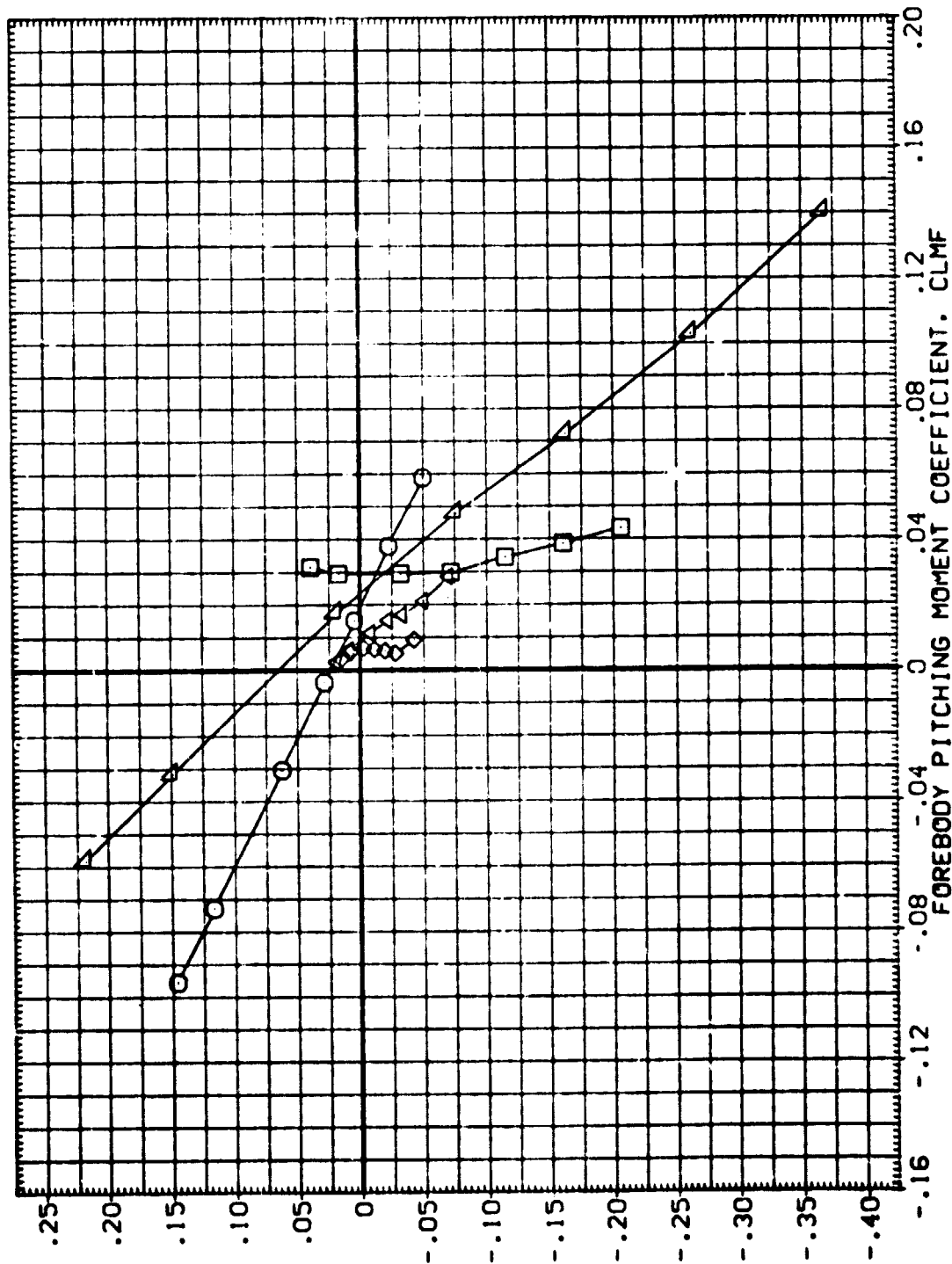


FIG. 15 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS. M=2.5 DEV=8/-4

(E)BETA.I = 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-28	MACH	SPDBRK	REFERENCE INFORMATION
(MET038)	AMES97-019(1A81) LVAP ORBITER-ALL ML SEALED	8.000	-4.000	2.500	.000	SREF 2690.0000 SQ.FT.
(MET138)	AMES97-019(1A81) LVAP TANK - ALL ML SEALED	8.000	-4.000	2.500	.000	LREF 1297.0000 IN.
(MET139)	AMES97-019(1A81) LVAP L-SRB - ALL ML SEALED	8.000	-4.000	2.500	.000	BREF 1297.0000 IN.
(MET138)	AMES97-019(1A81) LVAP R-LRB - ALL ML SEALED	8.000	-4.000	2.500	.000	XMRP 976.0000 IN. XT
(MET138)	AMES97-019(1A81) LVAP INT VEH ALL ML SEALED	8.000	-4.000	2.500	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

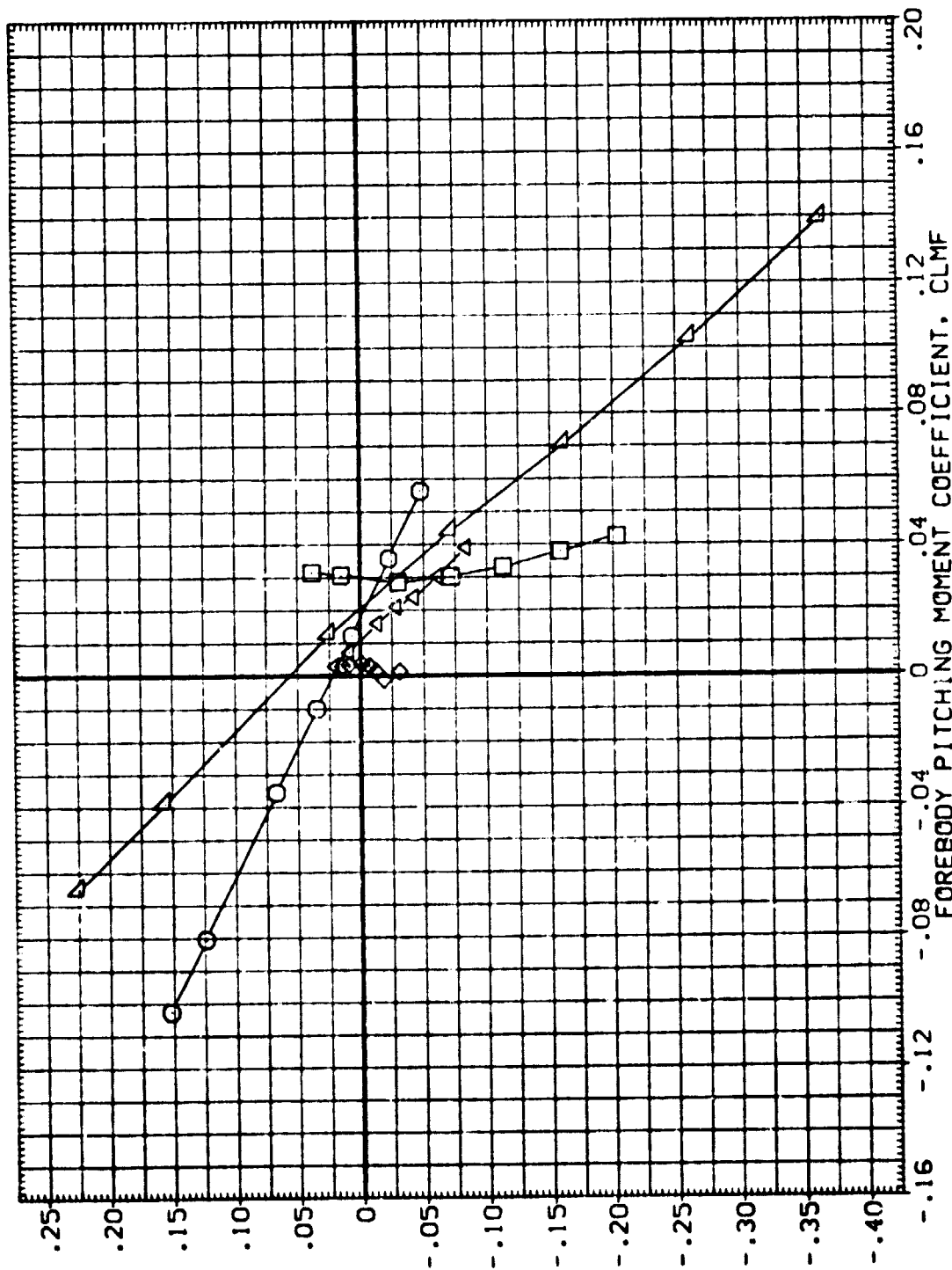


FIG. 15 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4
(FBFET) = 4.00

DATA SET SYMBOL: (NETC38) (NETY38) (NETL38) (NETR38)

CONFIGURATION DESCRIPTION: L-SPB L-SPB R-LRB L-SPB R-LRB L-SPB R-LRB L-SPB R-LRB

REFERENCE INFORMATION: SREF 2690.0000 SQ.FT. LREF 1297.0000 IN. BREF 1297.0000 IN. XT 976.0000 IN. Y 400.0000 IN. ZT 400.0000 IN. ZT SCALE .0300

ELV-18 8.000 ELV-08 -4.000 MACH 2.500 SPDBRK .000

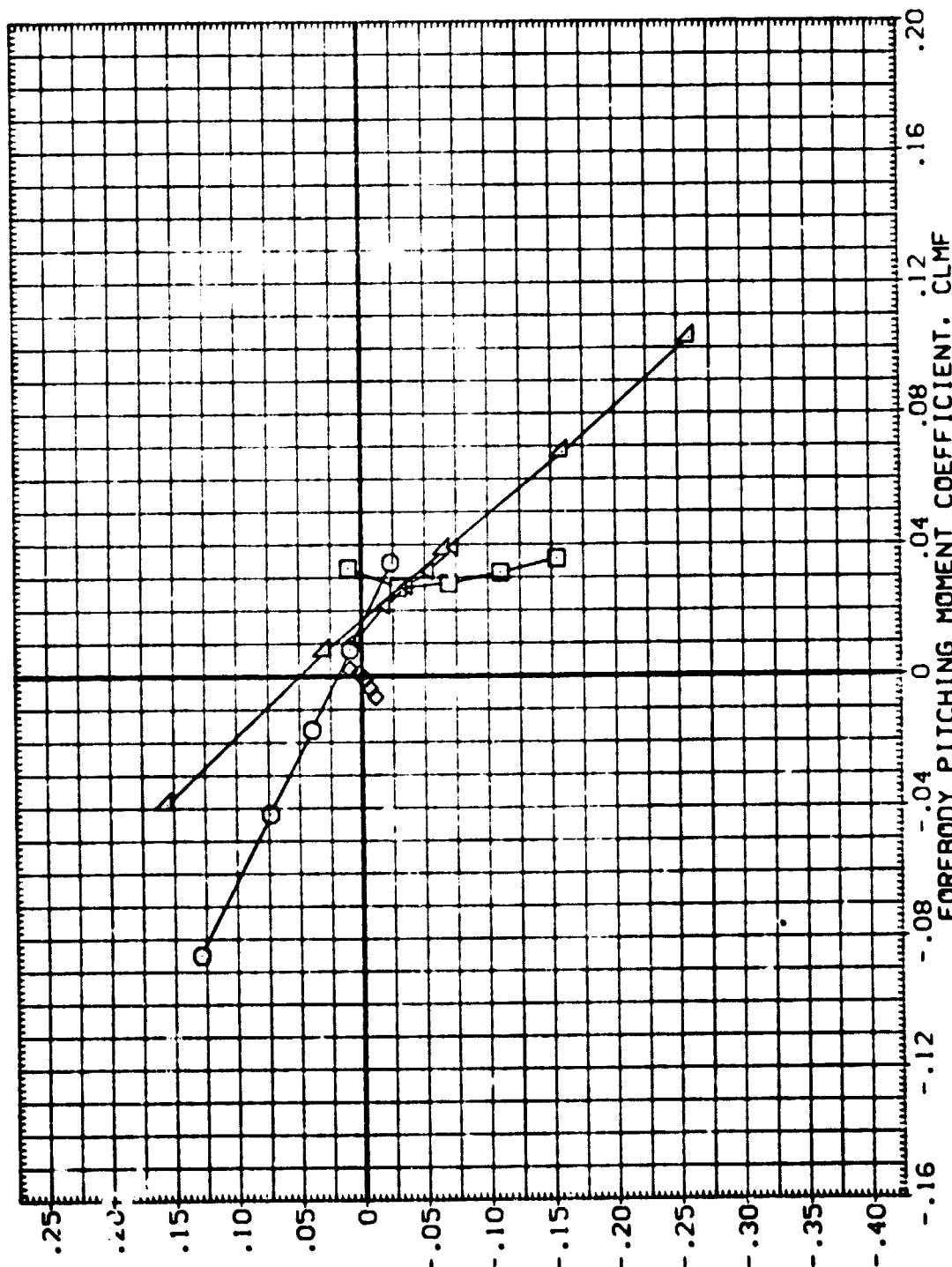
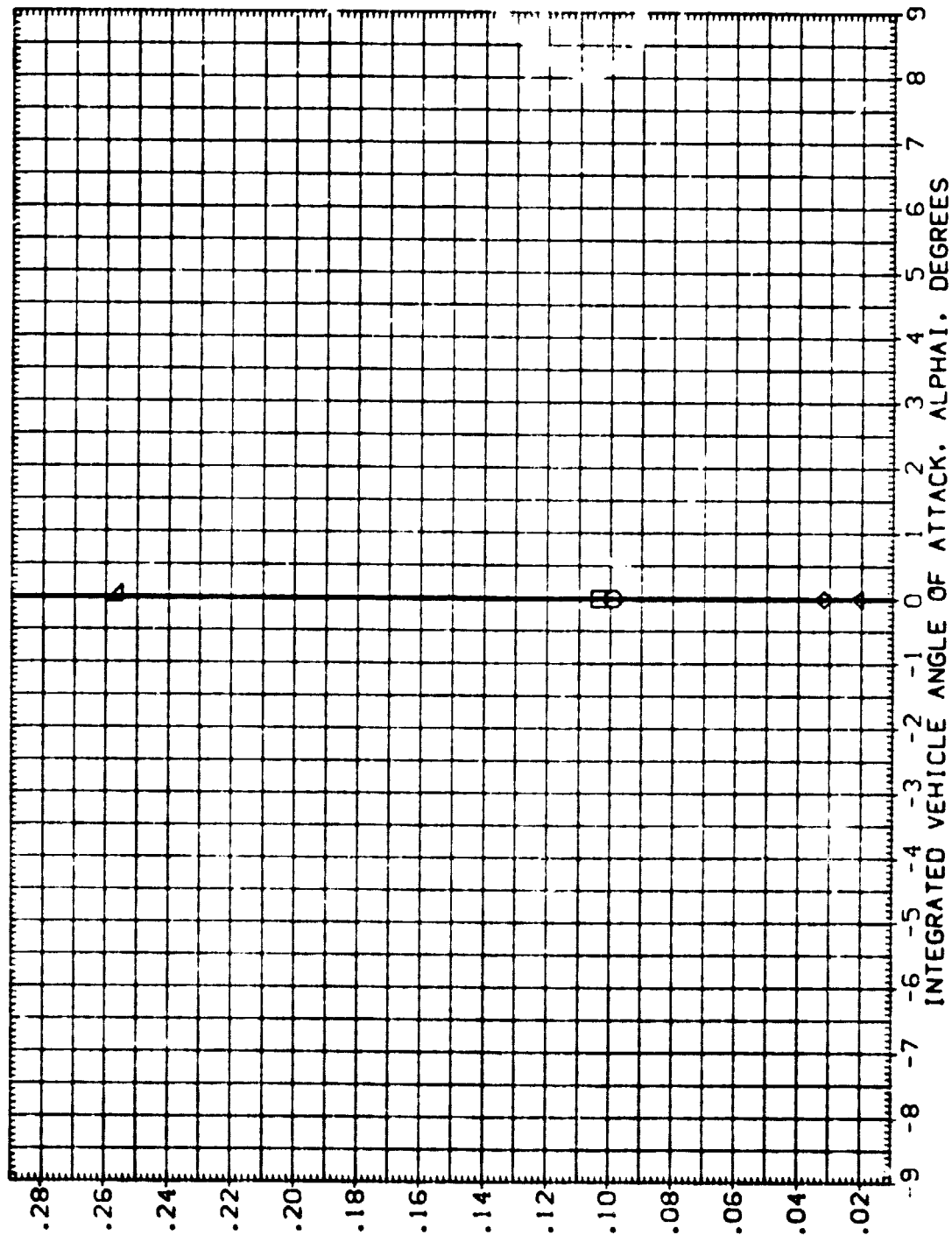


FIG. 15 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4

(G)BET.1 = 6.00

DATA	SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(MET042)	□	AMES97-019(IAB1) LVAP CRG1TER-ALL ML SEALED	.000	.000	2.500	.000	SREF 2690.0000 SQ. FT.
(MET142)	□	AMES97-019(IAB1) LVAP TAPK - ALL ML SEALED	.000	.000	2.500	.000	LREF 1297.0000 IN.
(METL42)	□	AMES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	.000	.000	2.500	.000	BREF 1297.0000 IN.
(METR42)	□	AMES97-019(IAB1) LVAP R-LRB - ALL ML SEALED	.000	.000	2.500	.000	XMRP 976.0000 IN. XT
(MET142)	□	AMES97-019(IAB1) LVAP INT VEH ALL ML SEALED	.000	.000	2.500	.000	ZMRP 400.0000 IN. YT
							SCALE .0300



FOREBODY AXIAL FORCE COEFFICIENT, CA

FIG. 16 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=0/0

(A)BETA1 = -6.00

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(MET042) AMES97-019(IAB1) LVAP ORBITER-ML ML SEALED

(MET142) AMES97-019(IAB1) LVAP TANK - ALL ML SEALED

(MET142) AMES97-019(IAB1) LVAP L-SRB - ALL ML SEALED

(MET142) AMES97-019(IAB1) LVAP R-LRB - ALL ML SEALED

(MET142) AMES97-019(IAB1) LVAP INT VEH ALL ML SEALED

ELV-1B ELV-0B MACH SPD BRK REFERENCE INFORMATION SQ. FT.

.000 .000 2.500 .000 SREF 2690.0000 IN.

.000 .000 2.500 .000 LREF 1297.0000 IN.

.000 .000 2.500 .000 BREF 1297.0000 IN.

.000 .000 2.500 .000 XMRP 576.0000 IN.

.000 .000 2.500 .000 ZMRP 400.0000 IN.

SCALE .0300

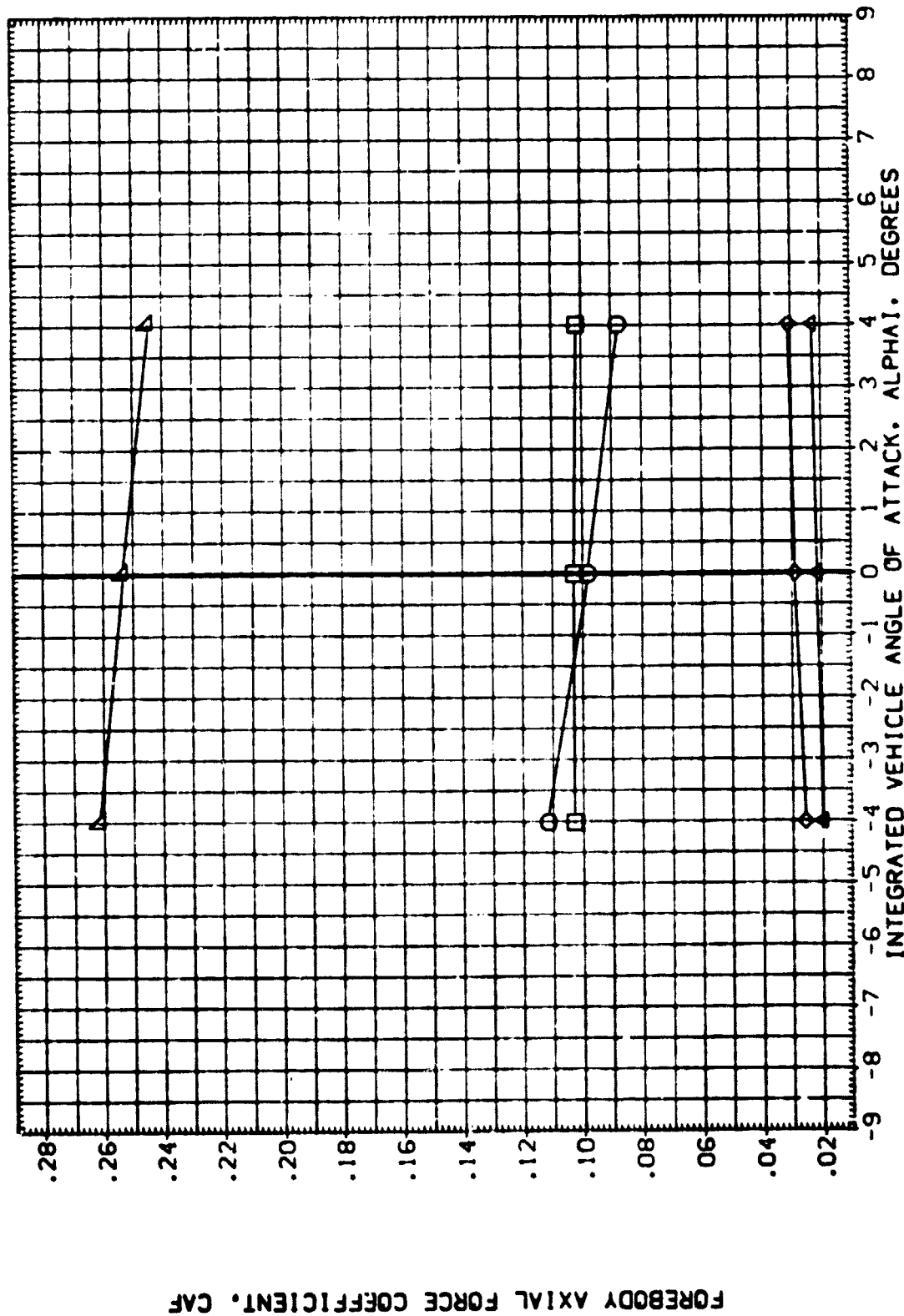


FIG. 16 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=0/0

(B)BET.1 = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-19	ELV-DB	MACH	SPDRK	REFERENCE INFORMATION
(MET042)	AMES97-019(1A8) LVP CDBATER-ALL ML SEALED	.000	.000	2.500	.000	SREF 2690.0000 SQ.FT.
(MET142)	AMES97-019(1A8) LVP TANA - ALL ML SEALED	.000	.000	2.500	.000	LREF 1297.0000 IN.
(MET142)	AMES97-019(1A8) LVP L-50B - ALL ML SEALED	.000	.000	2.500	.000	BRFF 1297.0000 IN.
(MET142)	AMES97-019(1A8) LVP P-10B - ALL ML SEALED	.000	.000	2.500	.000	X-APP 976.0000 IN.
(MET142)	AMES97-019(1A8) LVP IN. VIEW ALL ML SEALED	.000	.000	2.500	.000	Y-APP 400.0000 IN.
						SCALE .0300

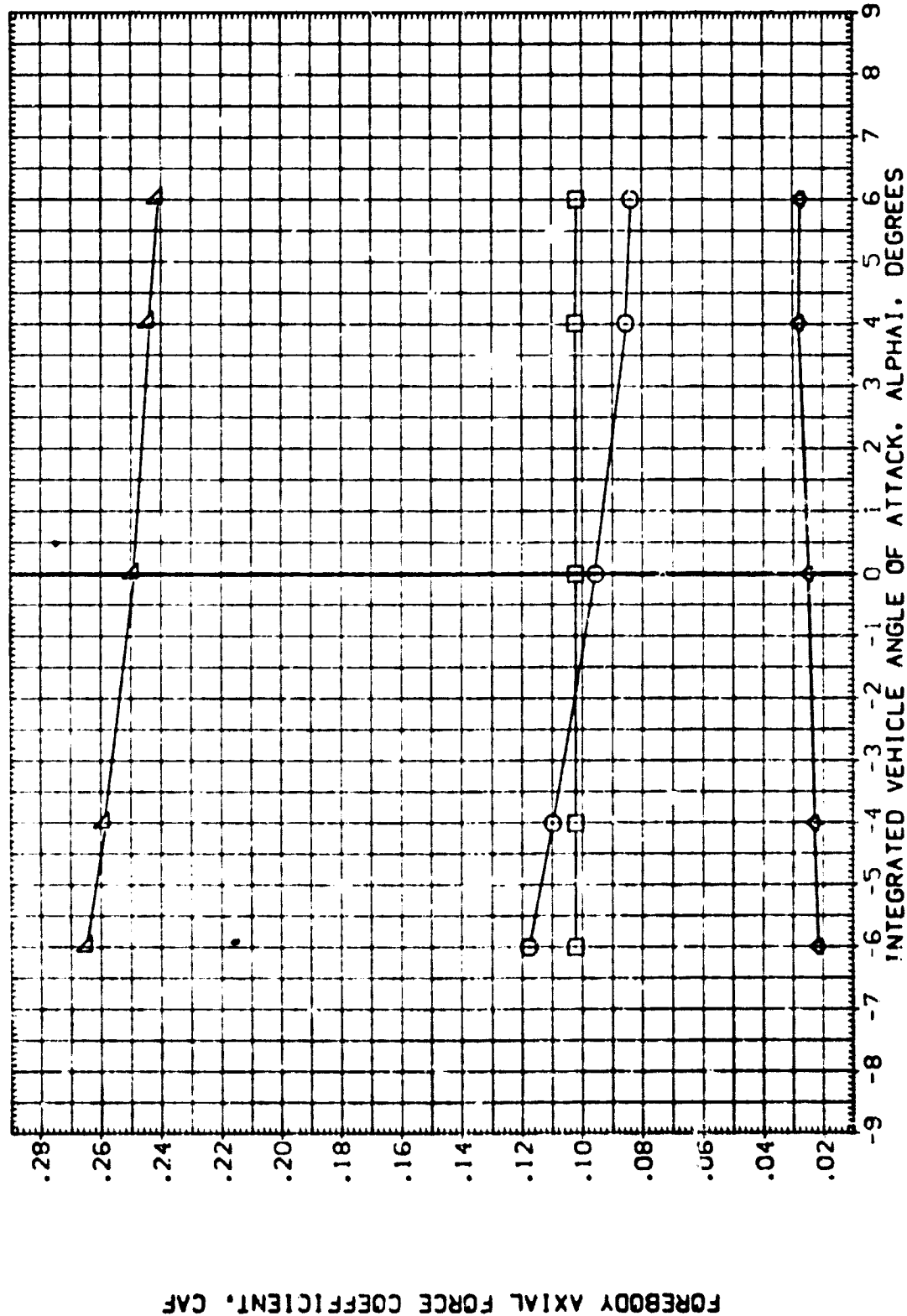


FIG. 1G LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=0/0

(C)BET.1 = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(NET042)	AMES97-019(IAB1) LVAP CRB1TER-ALL HL SEALED	.000	.000	2.500	.000	SREF 2690.0000 SQ.FT.
(NET142)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.500	.000	LREF 1297.0000 IN.
(NET142)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.500	.000	BREF 1297.0000 IN.
(NET142)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	.000	.000	2.500	.000	YMRP 976.0000 IN. XT
(NET142)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.500	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

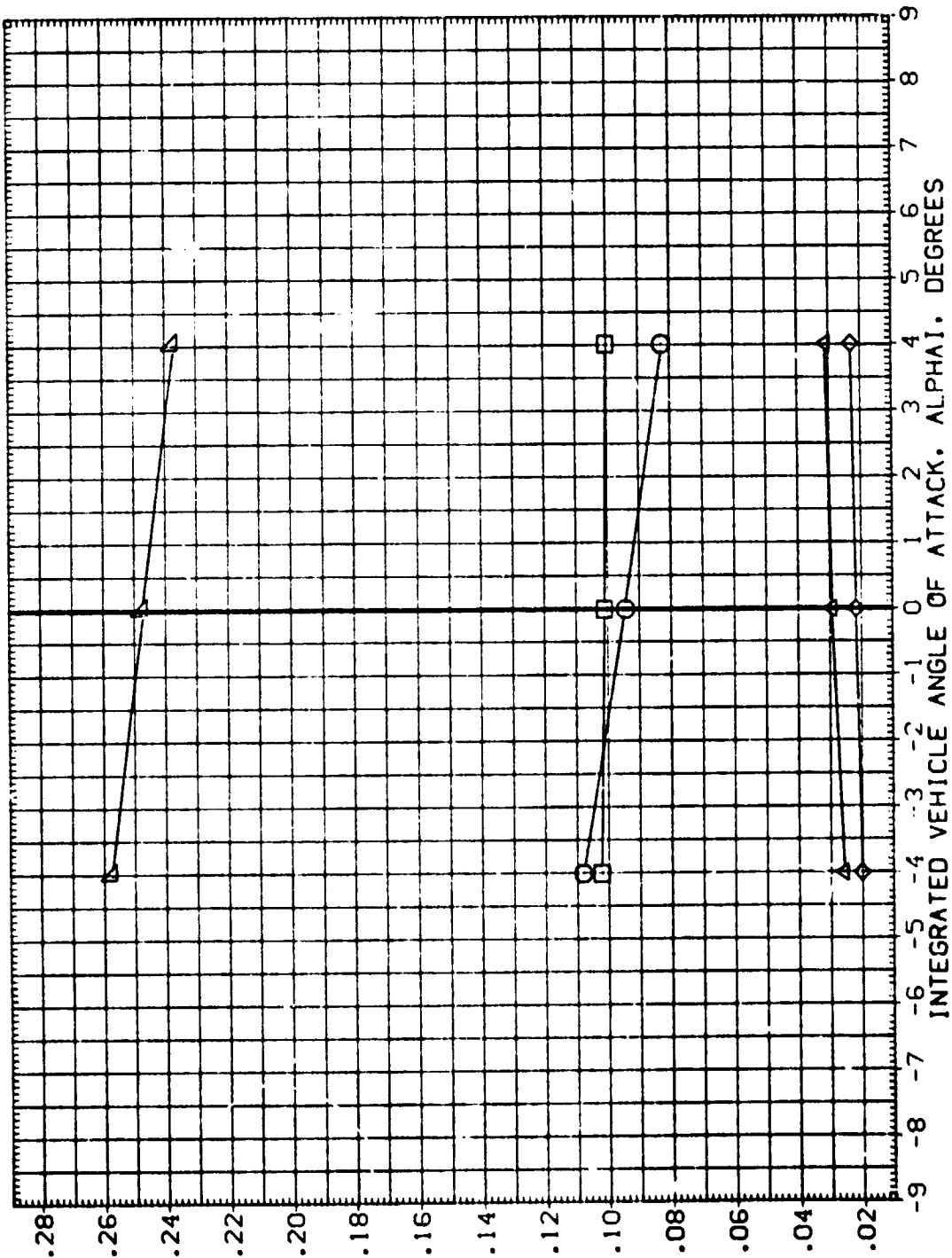


FIG. 16 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=0/0

(D)BET.1 = 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(ME1042)	AMES97-019(1A81) LVAP CRRITER-ALL HL SCALED	.000	.000	2.500	.000	SREF 2690.0000 SQ.FT.
(ME1142)	AMES97-019(1A81) LVAP TANK - ALL HL SCALED	.000	.000	2.500	.000	LREF 1297.0000 IN.
(ME1142)	AMES97-019(1A81) LVAP L-CPB - ALL HL SCALED	.000	.000	2.500	.000	BREF 1297.0000 IN.
(ME1142)	AMES97-019(1A81) LVAP R-CPB - ALL HL SCALED	.000	.000	2.500	.000	XMRP 976.0000 IN.
(ME1142)	AMES97-019(1A81) LVAP INT NEW ALL HL SCALED	.000	.000	2.500	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

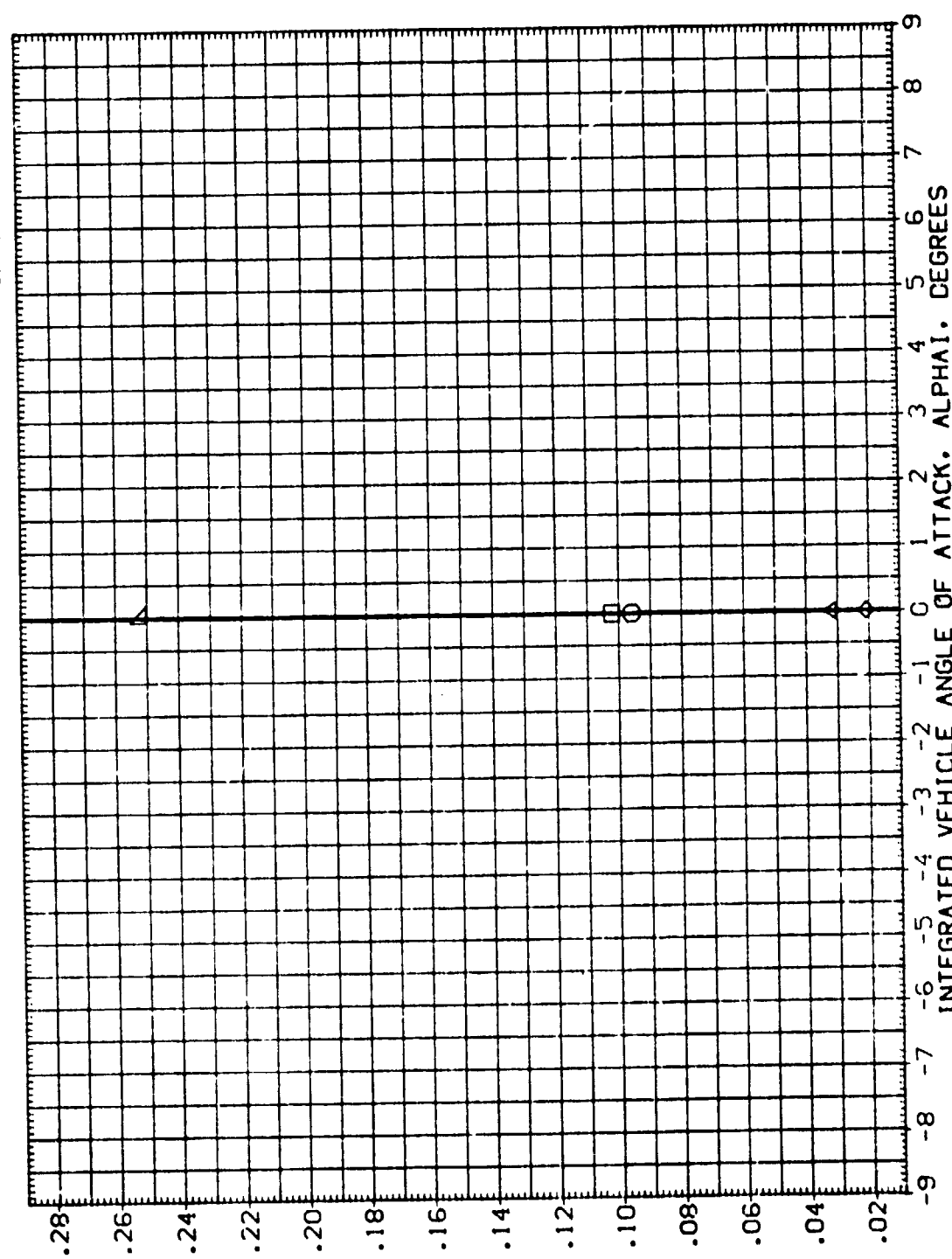


FIG. 16 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=0/0

DATA SET SYMBOL
(MET042)
(MET142)
(MET142)
(MET142)
(MET142)

CONFIGURATION DESCRIPTION
APES97-019(1A81) LVAP OPBITTER-ALL ML SEALED
APES97-019(1A81) LVAP TANK - ALL ML SEALED
APES97-019(1A81) LVAP L-SRB - ALL ML SEALED
APES97-019(1A81) LVAP R-LRB ALL ML SEALED
APES97-019(1A81) LVAP INT VEH ALL ML SEALED

ELV-1B ELV-0B MACH SPD BRK REFERENCE INFORMATION
.000 .000 2.500 .000 SREF 2690.0000 SQ.FT.
.000 .000 2.500 .000 LREF 1297.0000 IN.
.000 .000 2.500 .000 BREF 1297.0000 IN.
.000 .000 2.500 .000 XMRP 976.0000 IN. XT
.000 .000 2.500 .000 YMRP 400.0000 IN. YT
.000 .000 2.500 .000 ZMRP 400.0000 IN. ZT
SCALE .0300

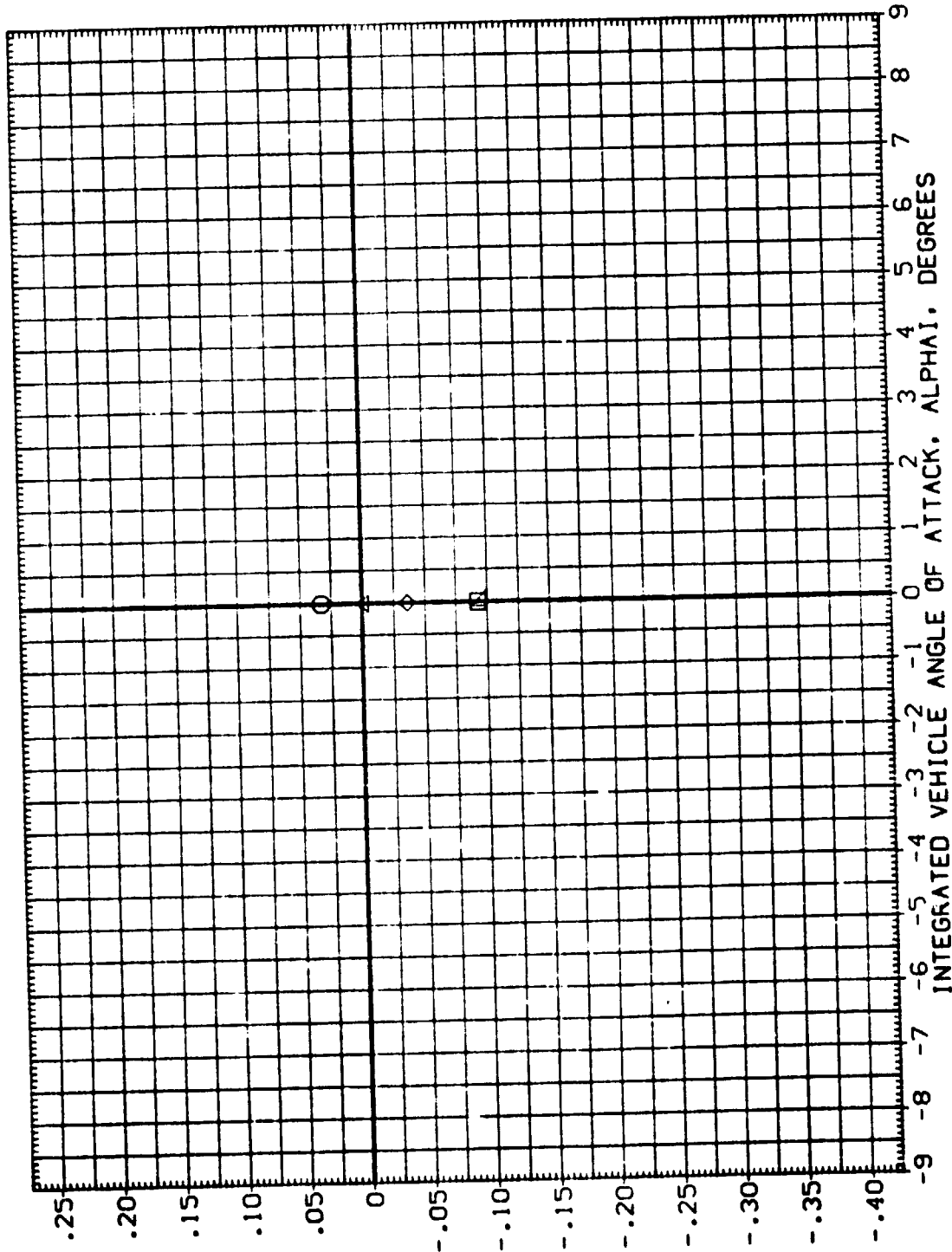


FIG. 1C LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=0/0

(A)BET.1 = -6.00

DATA SET	SYMBOL	CONFIGURATION	DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(MET042)	□	AMES97-019(1A1)	LVAP CPB:TER-ALL HL SEALED	.000	.000	2.500	.000	SREF 2690.0000 SO.FT.
(MET142)	○	AMES97-019(1A8)	LVAP TANK - ALL HL SEALED	.000	.000	2.500	.000	LREF 1297.0000 IN.
(MET142)	△	AMES97-019(1A9)	LVAP L-SPB - ALL HL SEALED	.000	.000	2.500	.000	BREF 1297.0000 IN.
(MET142)	◇	AMES97-019(1A8)	LVAP R-LPB ALL HL SEALED	.000	.000	2.500	.000	XMRP 976.0000 IN.
(MET142)	×	AMES97 019(1A8)	LVAP INT /EH ALL HL SEALED	.000	.000	2.500	.000	YMRP 400.0000 IN.
								ZMRP 400.0000 IN.
								SCALE .0300

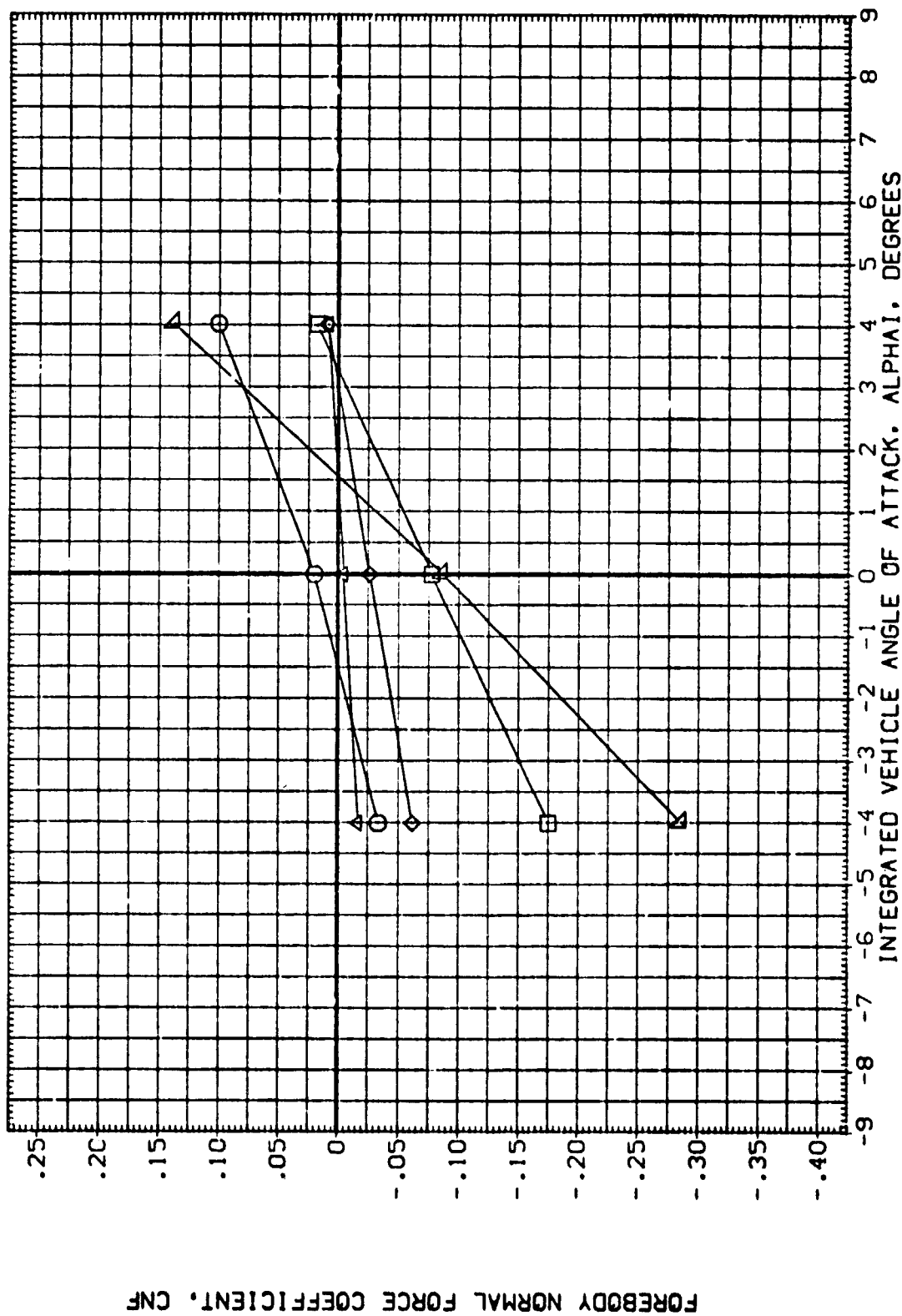


FIG. 16 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=0/0

(B) BET. I = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-09	MACH	SPOBRK	REFERENCE INFORMATION
(MET042)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	.000	.000	2.500	.000	SREF 2690.0000 SQ.FT.
(MET142)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.500	.000	LREF 1297.0000 IN.
(MET142)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.500	.000	BREF 1297.0000 IN.
(MET142)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	.000	.000	2.500	.000	YMRP 976.0000 IN. XT
(MET142)	AMES97-019(IAB1) LVAP INT YEH ALL HL SEALED	.000	.000	2.500	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

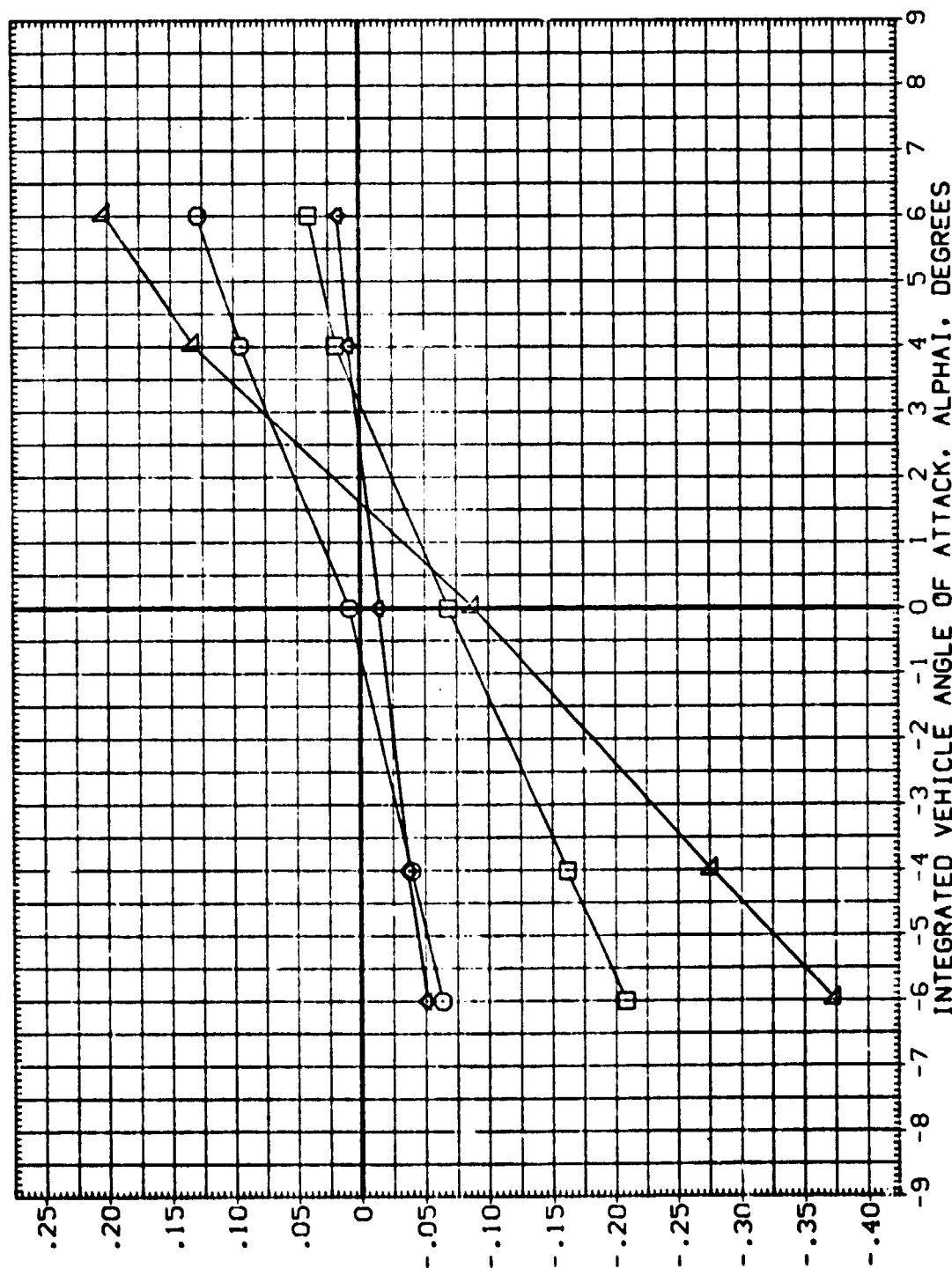


FIG. 1C LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=0/0

(C)BET.1 = .00

DATA SET	SYMBOL	CONFIGURATION	DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(MET042)	□	AMES37-019([A8])	LVAP	.000	.000	2.500	.000	SREF 2690.0000 SQ.FT.
(MET142)	○	AMES37-013([A8])	LVAP	.000	.000	2.500	.000	LREF 1297.0000 IN.
(MET142)	×	AMES37-019([A8])	LVAP	.000	.000	2.500	.000	BREF 1297.0000 IN.
(MET142)	△	AMES37-019([A8])	LVAP	.000	.000	2.500	.000	XMRP 976.0000 IN. XT
(MET142)	◇	AMES37-019([A8])	LVAP	.000	.000	2.500	.000	YMRP 400.0000 IN. YT
								SCALE .0300

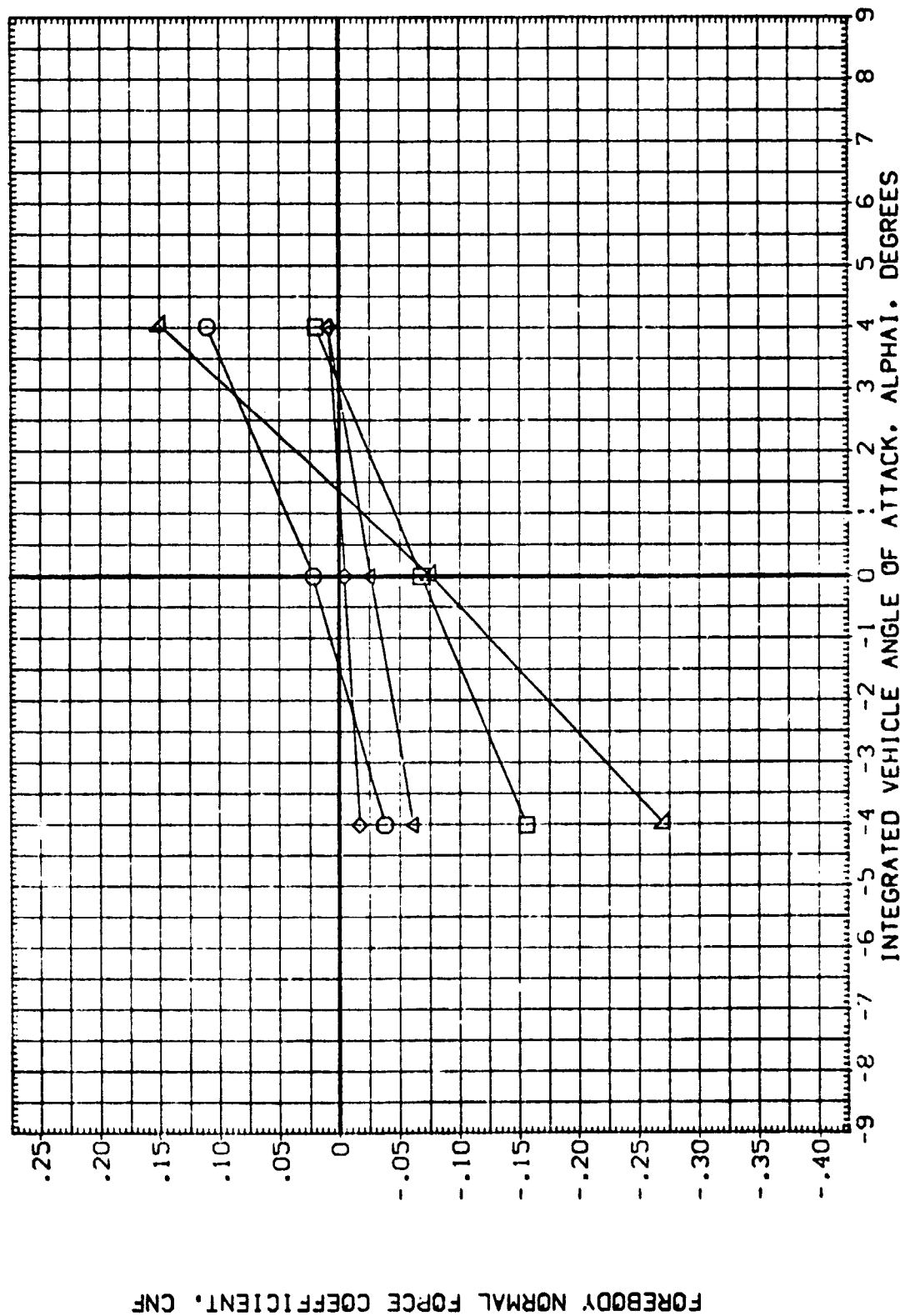


FIG. 16 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=0/0

(0)BET.1 = 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(MET042)	AMES97-019(IAB1) LVAP ORBITTER-ALL HL SEALED	.000	.000	2.500	.000	SREF 2690.0000 SQ.FT.
(MET142)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.500	.000	LREF 1297.0000 IN.
(METL42)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.500	.000	BREF 1297.0000 IN.
(METR42)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	.000	.000	2.500	.000	XMRP 976.0000 IN.
(MET142)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.500	.000	YMRP .0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

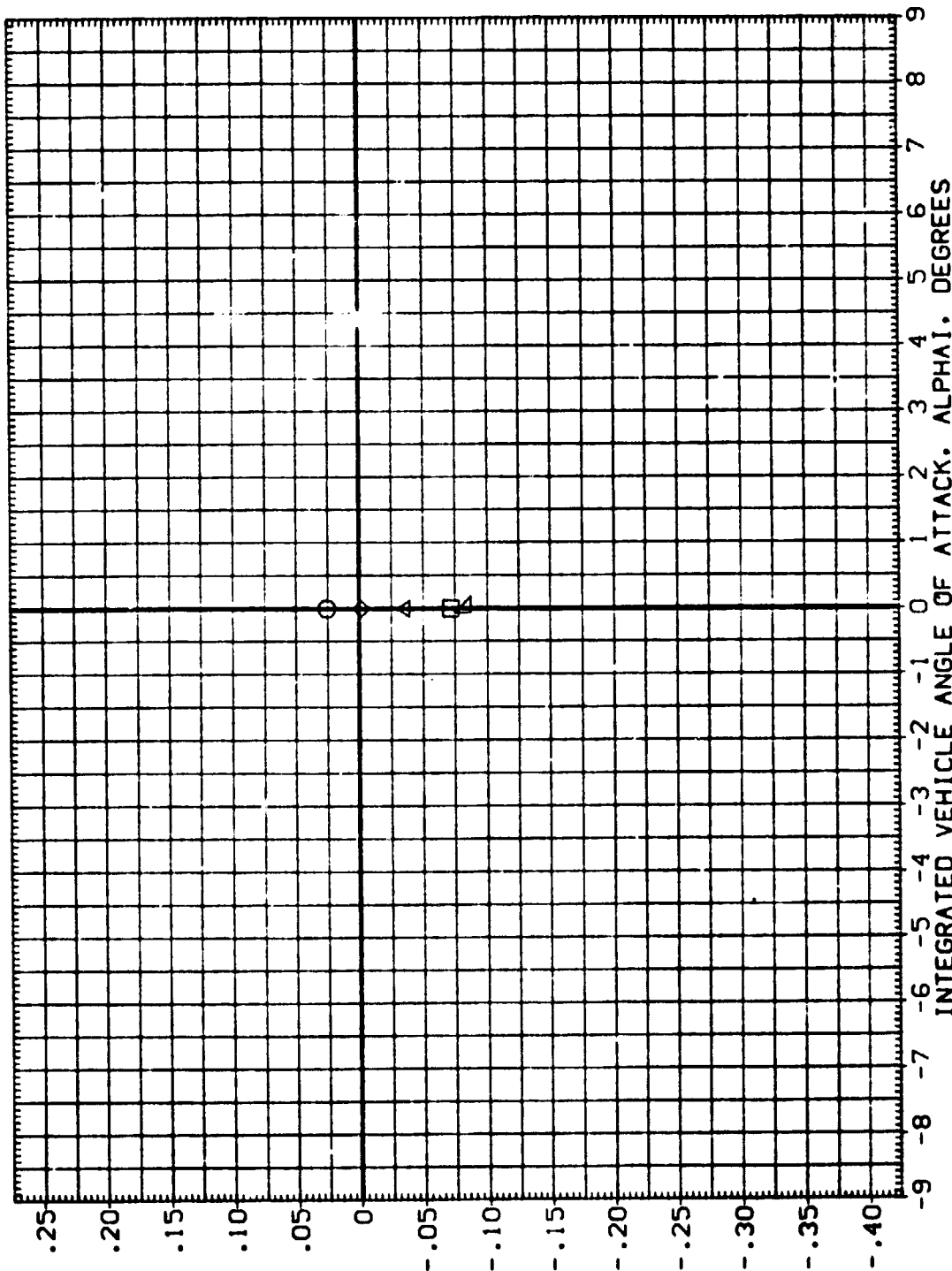
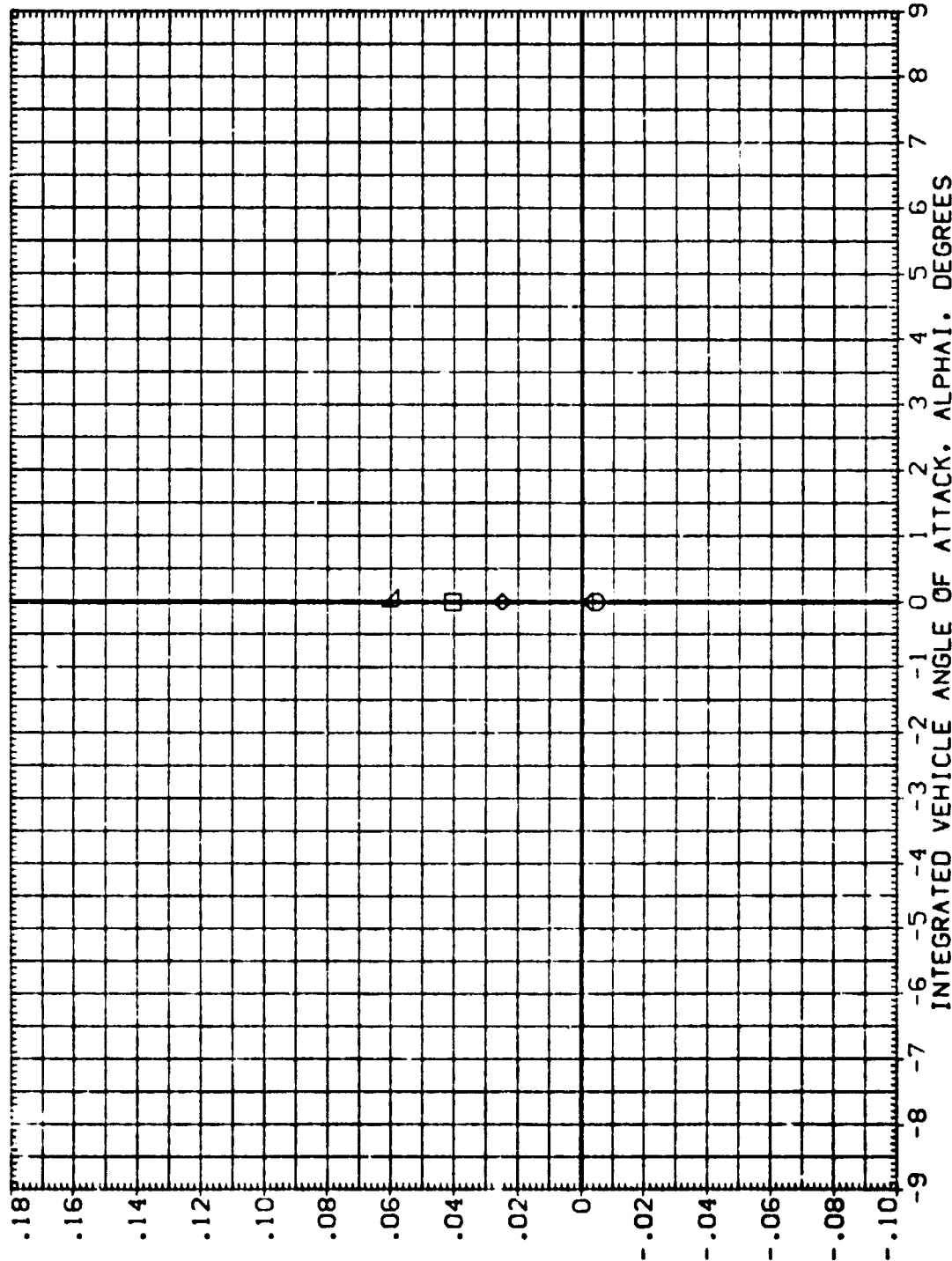


FIG. 16 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=0/0

(E)BET.1 = 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(MET042)	AMES97-019(IAB1) LVAP DRBITER-ALL HL SEALED	.000	.000	2.500	.000	SREF 2690.0000 SQ.FT.
(MET142)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.500	.000	LREF 1297.0000 IN.
(MET142)	AMES97-019(IAB1) LVAP L-SPB - ALL HL SEALED	.000	.000	2.500	.000	BREF 1297.0000 IN.
(MET142)	AMES97-019(IAB1) LVAP R-LPB - ALL HL SEALED	.000	.000	2.500	.000	XHRP 976.0000 IN.
(MET142)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.500	.000	ZHRP 400.0000 IN.
						SCALE .0300

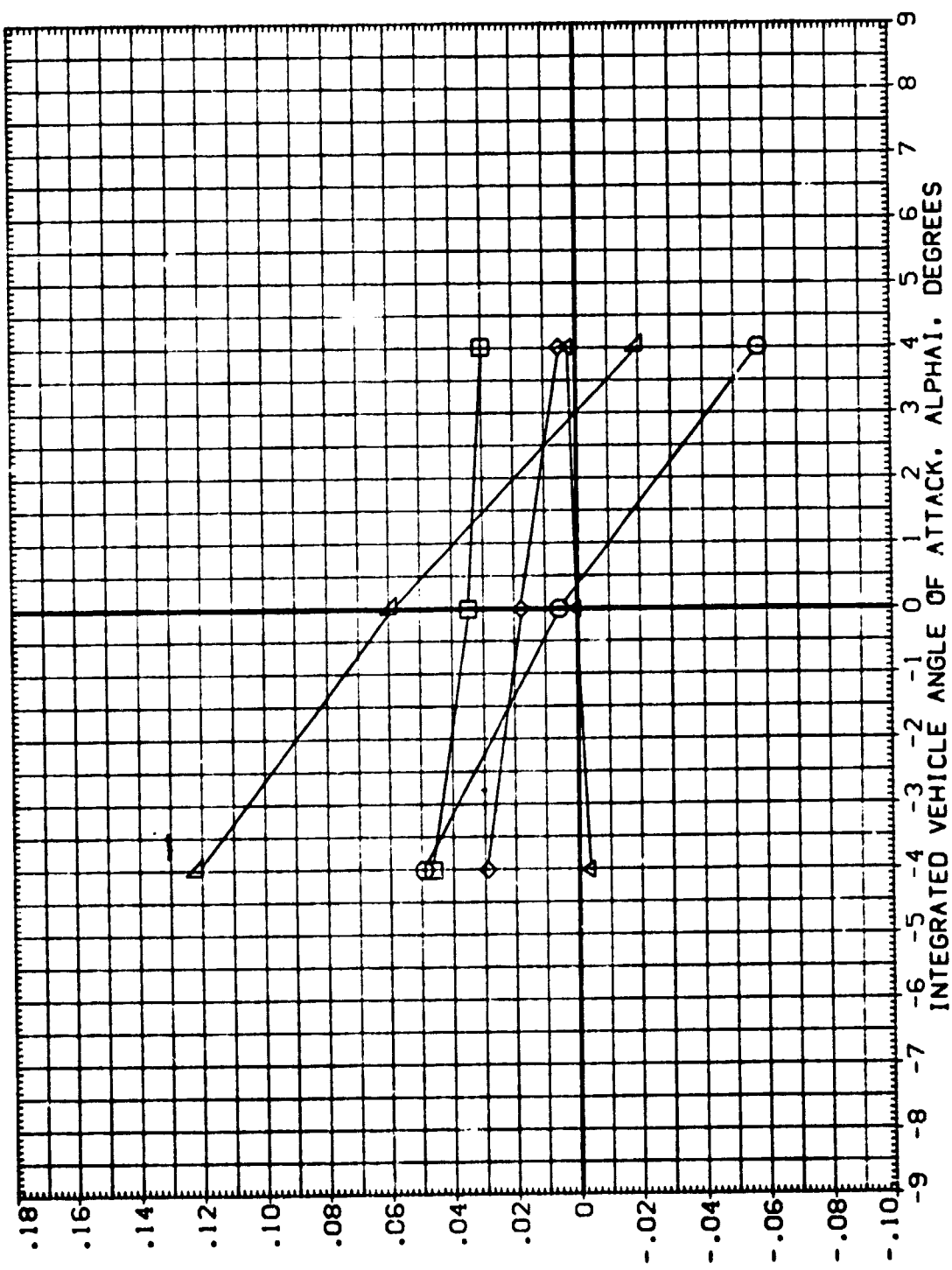


FOREBODY PITCHING MOMENT COEFFICIENT, CLMF

FIG. 16 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=0/0

(A)BET.VI = -6.70

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDBRK	REFERENCE INFORMATION
(NET042)	AME597-019(IAB1) LVAP ORBITER-ALL HL SEALED	.000	.000	2.500	.000	SREF 2690.0000 SO.FT.
(NET042)	AME597-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.500	.000	LREF 1297.0000 IN.
(NET042)	AME597-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.500	.000	BREF 1297.0000 IN.
(NET042)	AME597-019(IAB1) LVAP R-LRB - ALL HL SEALED	.000	.000	2.500	.000	YMRP 976.0000 IN.
(NET042)	AME597-019(IAB1) LVAP INT VEN ALL HL SEALED	.000	.000	2.500	.000	ZMRP 400.0000 IN.
						SCALE .0300



FOREBODY PITCHING MOMENT COEFFICIENT, CLMF

FIG. 16 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=0/0

(B)BET.1 = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(MET042)	AMES97-019(IAB1) LVAP ORB:TER-ALL HL SEALED	.000	.000	2.500	.000	SREF 2690.0000 SQ.FT.
(MET42)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.500	.000	LREF 1297.0000 IN.
(METL42)	AMES97-019(IAB1) LVAP L-SPB - ALL HL SEALED	.000	.000	2.500	.000	BREF 1297.0000 IN.
(METR42)	AMES97-019(IAB1) LVAP P-LRB ALL HL SEALED	.000	.000	2.500	.000	XMRP 976.0000 IN.
(METI42)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.500	.000	ZMRP 400.0000 IN.
						SCALE .0300

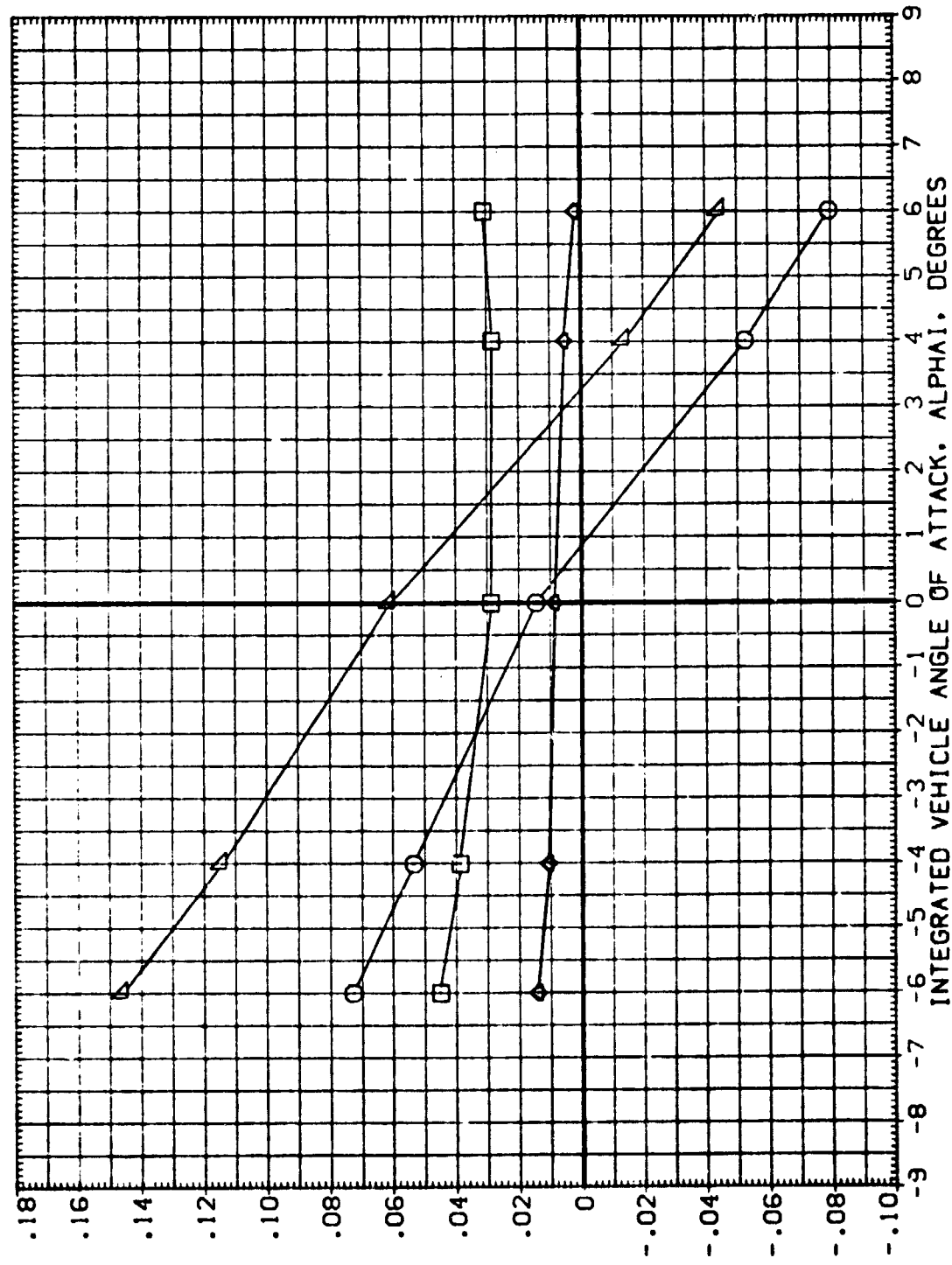


FIG. 16 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=0/0

DATA SET SYMBOL CONFIGURATION DESCRIPTION ELV-1B ELV-0B MACH SPOBRK REFERENCE INFORMATION

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(MET042)	AMES97-019(IAB1) LVAP ORBITTER-ALL M _L SEALED	.000	.000	2.500	.000	SREF 2690.0000 SQ.FT.
(MET142)	AMES97-019(IAB1) LVAP TANK - ALL M _L SEALED	.000	.000	2.500	.000	LREF 1297.0000 IN.
(MET142)	AMES97-019(IAB1) LVAP L-SRB - ALL M _L SEALED	.000	.000	2.500	.000	BREF 1297.0000 IN.
(MET142)	AMES97-019(IAB1) LVAP R-LRB - ALL M _L SEALED	.000	.000	2.500	.000	YMRP 976.0000 IN.
(MET142)	AMES97-019(IAB1) LVAP INT VEH ALL M _L SEALED	.000	.000	2.500	.000	ZMRP 400.0000 IN.
						SCALE .0300

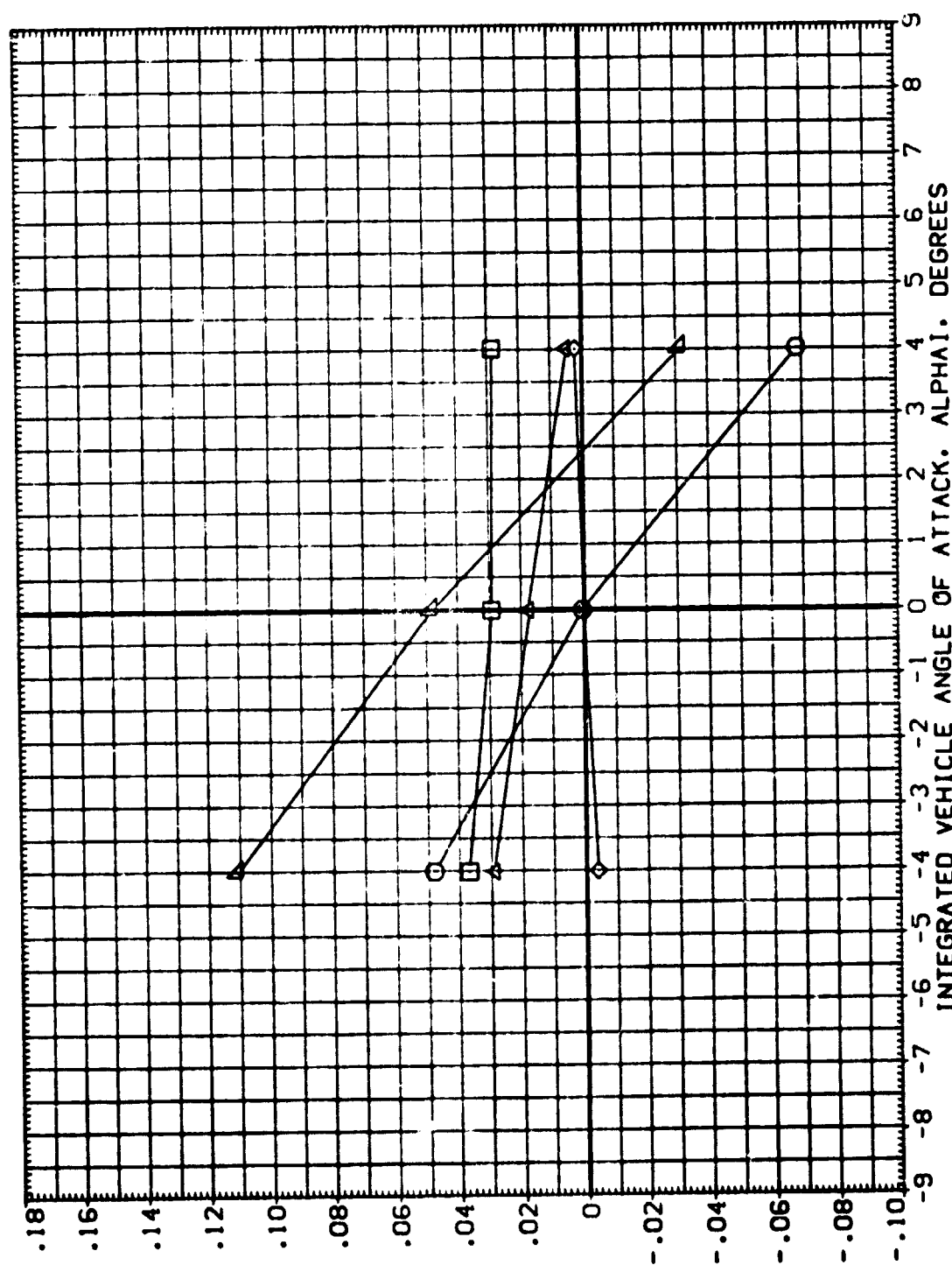


FIG. 16 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=0/0

REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRBK	REFERENCE INFORMATION
(MET042)	AME597-0191(AB1) LVAP DRBITER-ALL ML SEALED	.000	.000	2.500	.000	SREF 2690.0000 SQ.FT.
(MET142)	AME597-0191(AB1) LVAP TANK - ALL ML SEALED	.000	.000	2.500	.000	LREF 1257.0000 IN.
(MET142)	AME597-0191(AB1) LVAP L-SRB - ALL ML SEALED	.000	.000	2.500	.000	GREF 1257.0000 IN.
(MET142)	AME597-0191(AB1) LVAP R-LRB ALL ML SEALED	.000	.000	2.500	.000	XMRP 976.0000 IN.
(MET142)	AME597-0191(AB1) LVAP INT VEM ALL ML SEALED	.000	.000	2.500	.000	ZMRP 400.0000 IN.
						SCALE .0300

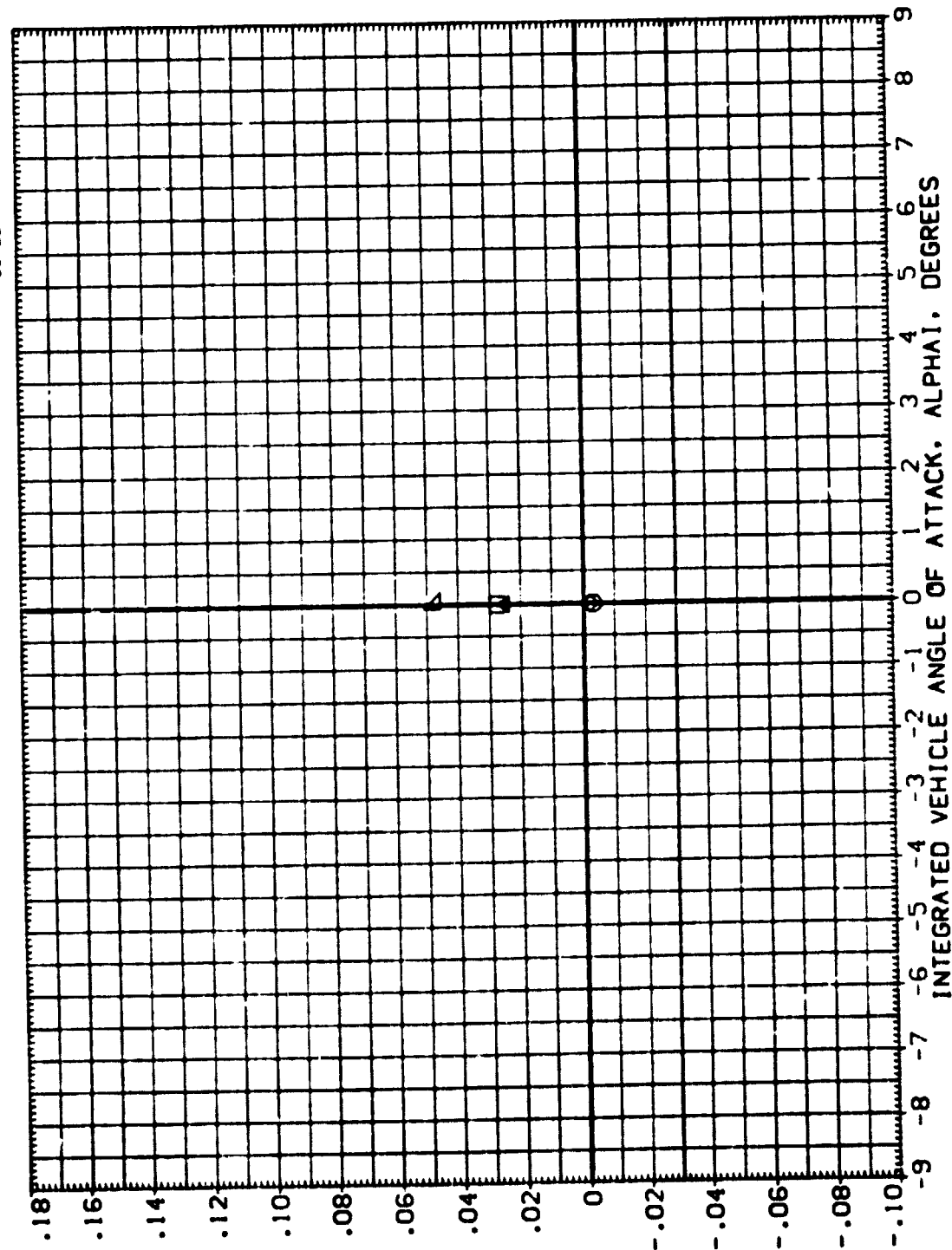


FIG. 1C LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=0/0

(E)BET.1 = 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(NET042)	AMES97-019(IAB1) LVAP ORBITTER-ALL ML SEALED	.000	.000	2.500	.000	SREF 2690.0000 SQ.FT.
(NET142)	AMES97-019(IAB1) LVAP TANK - ALL ML SEALED	.000	.000	2.500	.000	LREF 1297.0000 IN.
(NET142)	AMES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	.000	.000	2.500	.000	BREF 1297.0000 IN.
(NET142)	AMES97-019(IAB1) LVAP R-LRB - ALL ML SEALED	.000	.000	2.500	.000	YMRP 976.0000 IN.
(NET142)	AMES97-019(IAB1) LVAP INT VEH ALL ML SEALED	.000	.000	2.500	.000	ZMRP 400.0000 IN.
						SCALE .0300

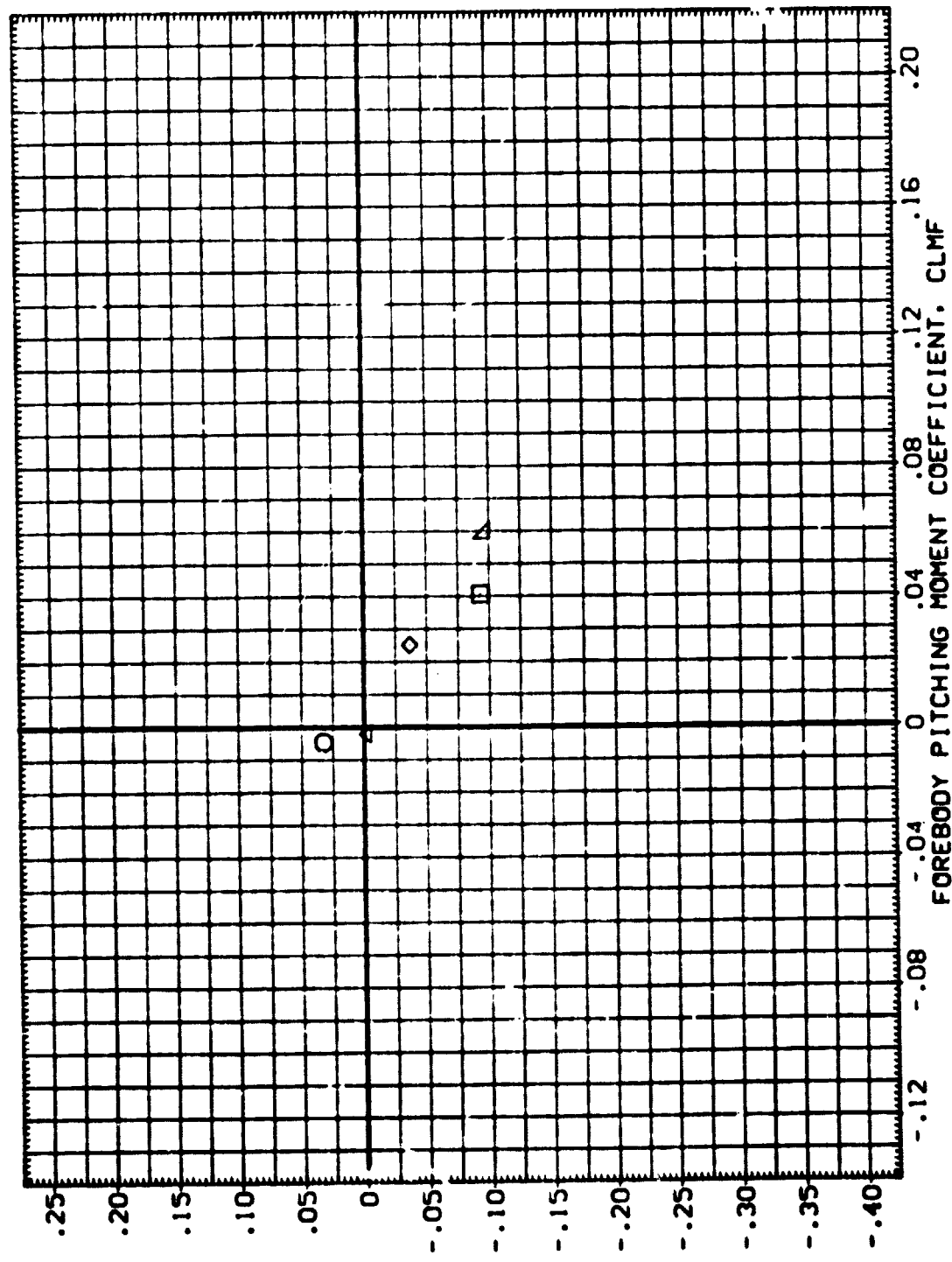


FIG. 1C LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=0/0
 (A) BET. 1 = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-09	MACH	SP0B0K	REFERENCE INFORMATION
(ME1042)	AMES97-019(1AB1) LVAP CRB1TER-ALL HL SEALED	.000	.000	2.500	.000	SREF 2690.0000 SQ.FT.
(ME1142)	AMES97-019(1AB1) LVAP TANK - ALL HL SEALED	.000	.000	2.500	.000	LREF 1297.0000 IN.
(ME1142)	AMES97-019(1AB1) LVAP L-SP8 - ALL HL SEALED	.000	.000	2.500	.000	BREF 1297.0000 IN.
(ME1142)	AMES97-019(1AB1) LVAP R-108 ALL HL SEALED	.000	.000	2.500	.000	XMRP 976.0000 IN. XT
(ME1142)	AMES97-019(1AB1) LVAP INT VIEW ALL HL SEALED	.000	.000	2.500	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

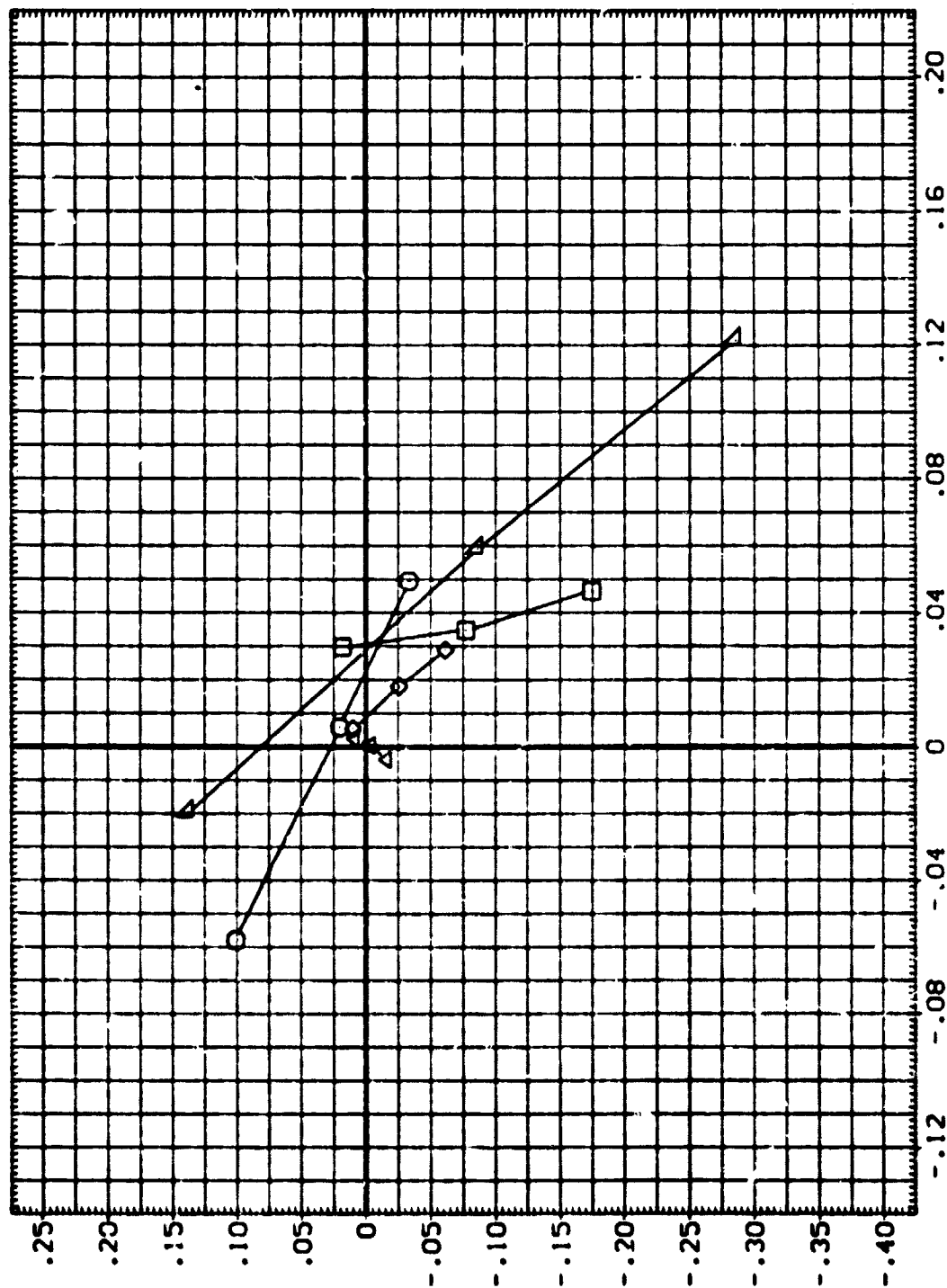


FIG. 16 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=0/0

(8)BET.1 = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDRK	REFERENCE INFORMATION
(MET042)	AMES97-019(IAB1) LVAP ORBITTER-ALL HL SEALED	.000	.000	2.500	.000	SREF 2690.0000 SO.FT.
(MET142)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.500	.000	LREF 1297.0000 IN.
(MET142)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.500	.000	BREF 1297.0000 IN.
(MET142)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	.000	.000	2.500	.000	XMRP 976.0000 IN. XT
(MET142)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.500	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

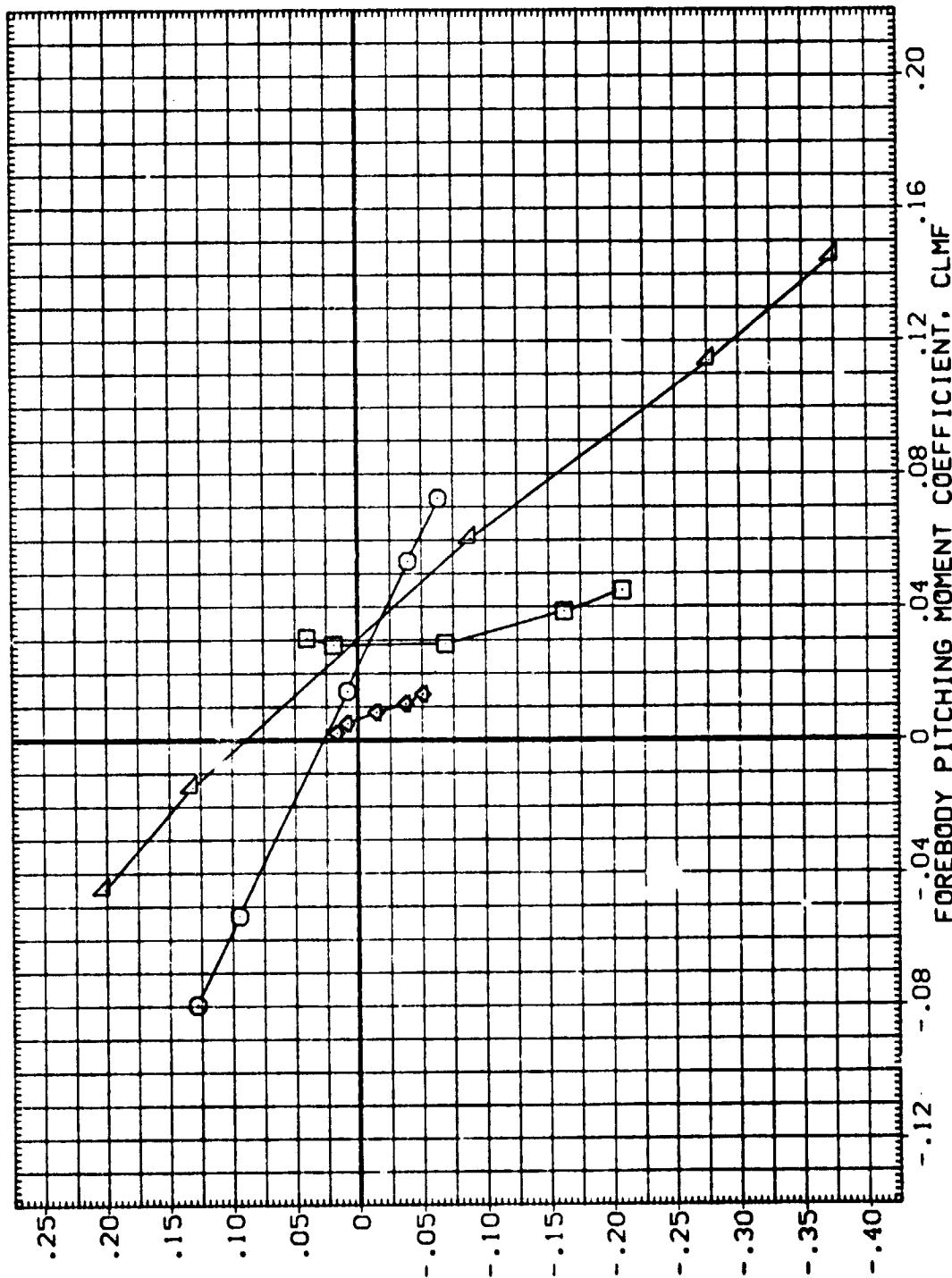


FIG. 16 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=0/0

(C)BETAI = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDRK	REFERENCE INFORMATION
(MET042)	AMES97-019(IAB1) LVAP	.000	.000	2.500	.000	SREF 2690.0000 SQ.FT.
(MET142)	AMES97-019(IAB1) LVAP TANK	.000	.000	2.500	.000	LREF 1297.0000 IN.
(MET142)	AMES97-019(IAB1) LVAP L-SRB	.000	.000	2.500	.000	BREF 1297.0000 IN.
(MET142)	AMES97-019(IAB1) LVAP R-LRB	.000	.000	2.500	.000	XMRP 976.0000 IN.
(MET142)	AMES97-019(IAB1) LVAP INT VEH	.000	.000	2.500	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

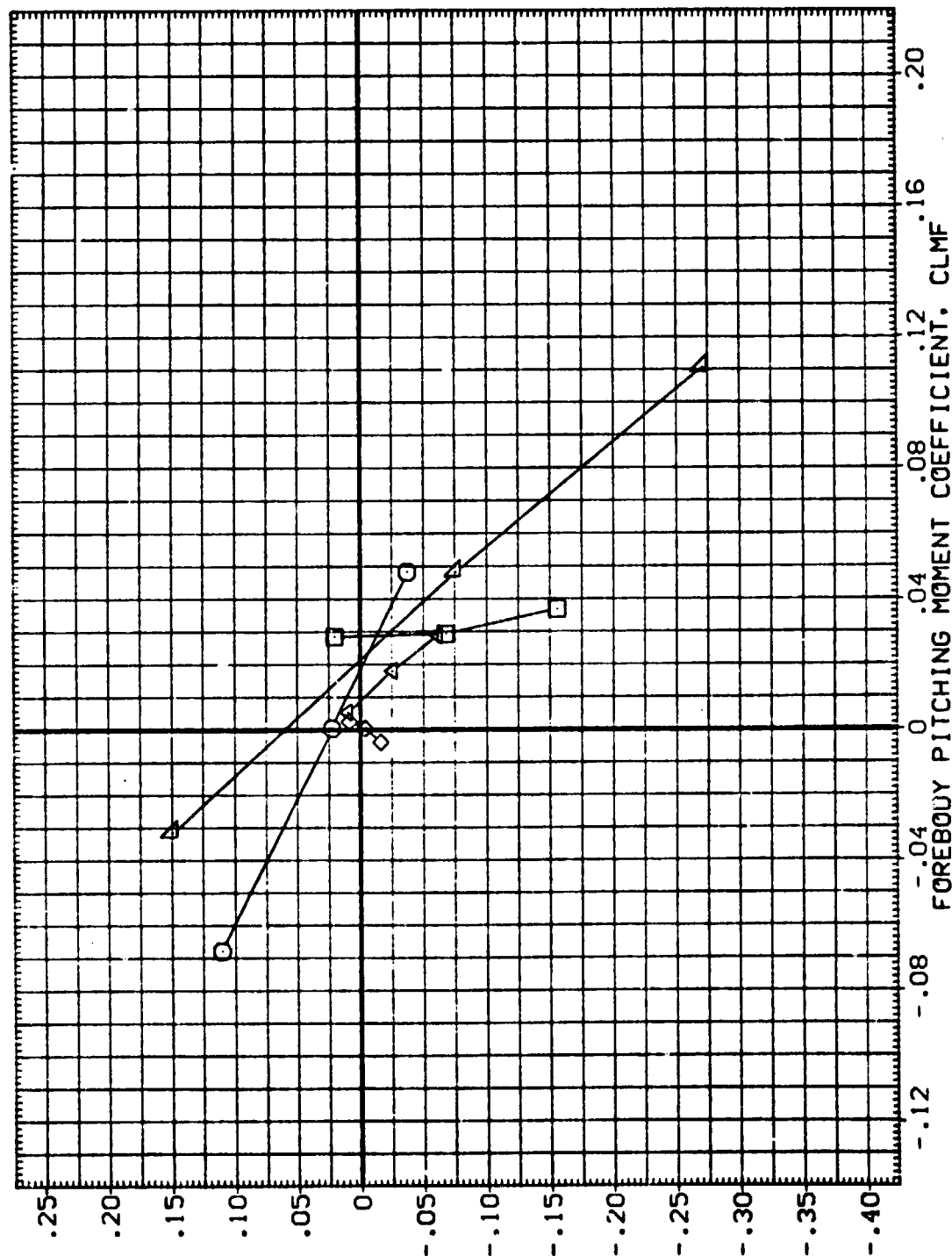


FIG. 16 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=0/0

(CO)BETA I = 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDBRK	REFERENCE INFORMATION
(MET042)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	.000	.000	2.500	.000	SREF 2650.0000 SQ.FT.
(MET142)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.500	.000	LREF 1297.0000 IN.
(MET142)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.500	.000	BREF 1297.0000 IN.
(MET142)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	.000	.000	2.500	.000	YMRP 976.0000 IN.
(MET142)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.500	.000	ZMRP 400.0000 IN.
						SCALE .0300

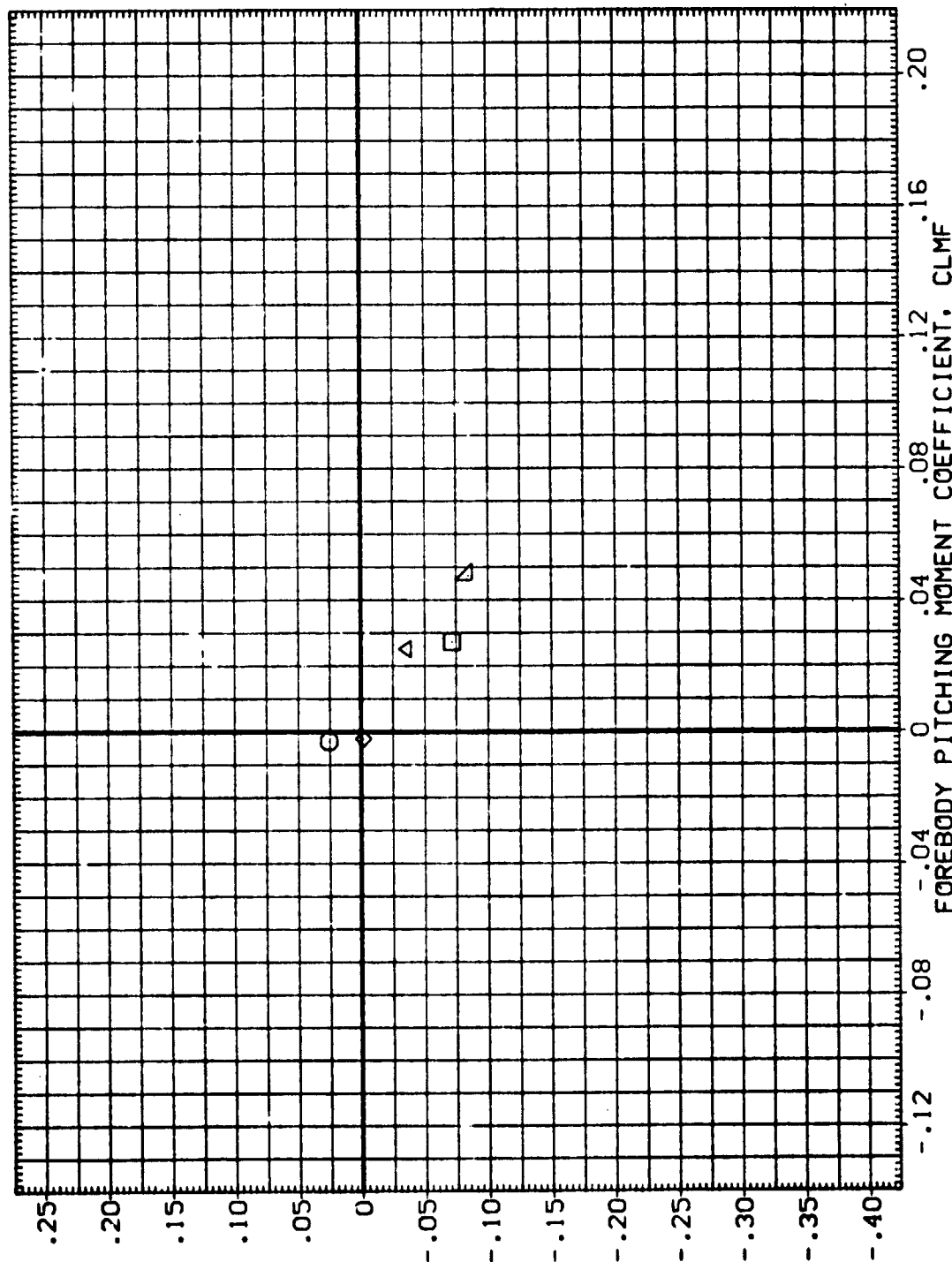


FIG. 16 LONGITUDINAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=0/0

(E)BETA.I = 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDBRK	REFERENCE INFORMATION
(LET035)	AMES97-019(IAB1) LVAP CRBITER-ALL HL SEALED	8.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LET135)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LET135)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LET135)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	1.550	.000	XHRP 976.0000 IN.
(LET135)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	1.550	.000	YHRP 400.0000 IN.
						ZHRP 400.0000 IN.
						SCALE .0300

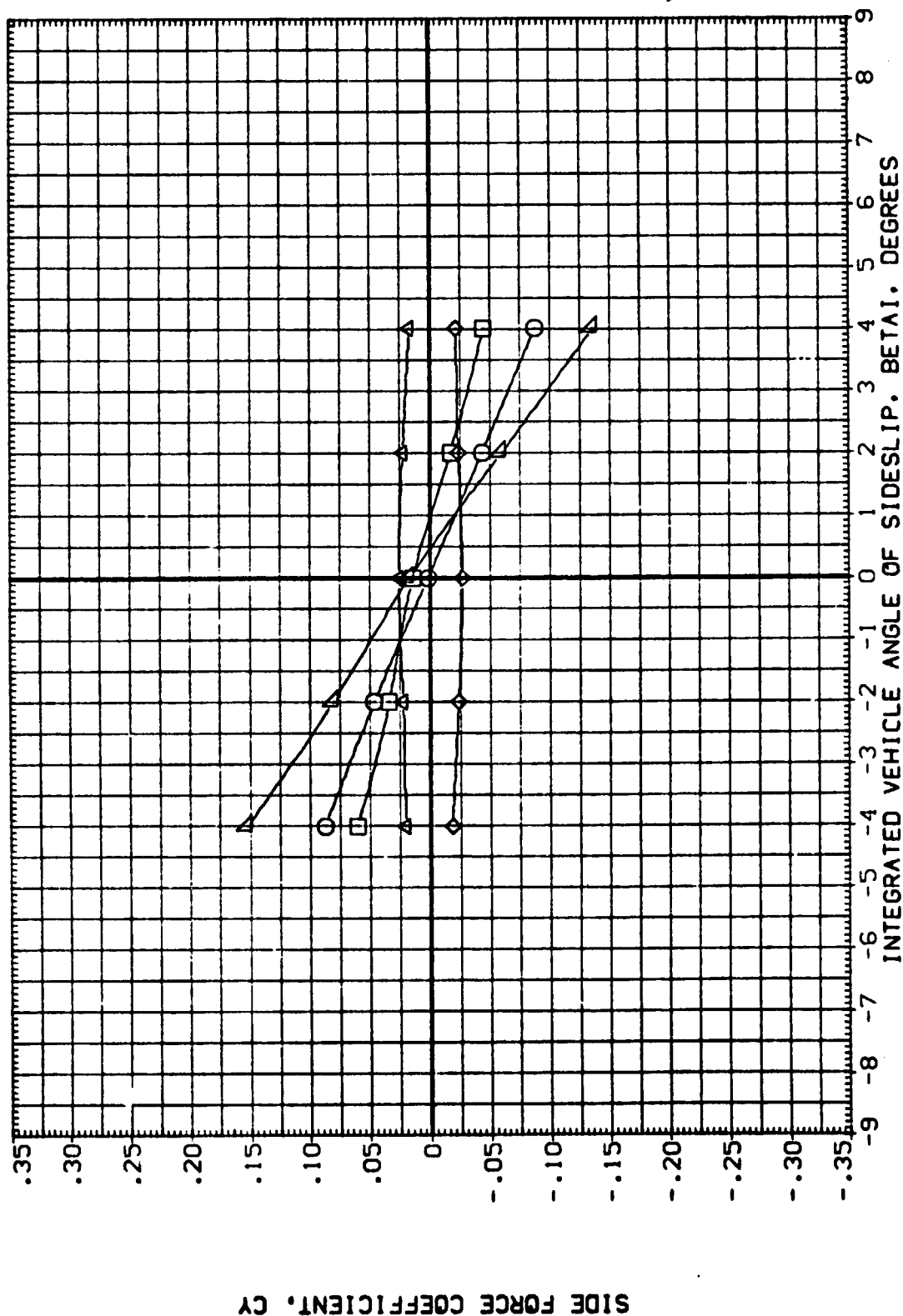


FIG. 17 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=1.55$ DEV=8/-4
(A) $\alpha_{AI} = -6.00$

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SP0BRK	REFERENCE INFORMATION
(LET035)	AMES97-019(1A81) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LET135)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LET135)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LET135)	AMES97-019(1A81) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	1.550	.000	XMRP 976.0000 IN. XT
(LET135)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	-4.000	1.550	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

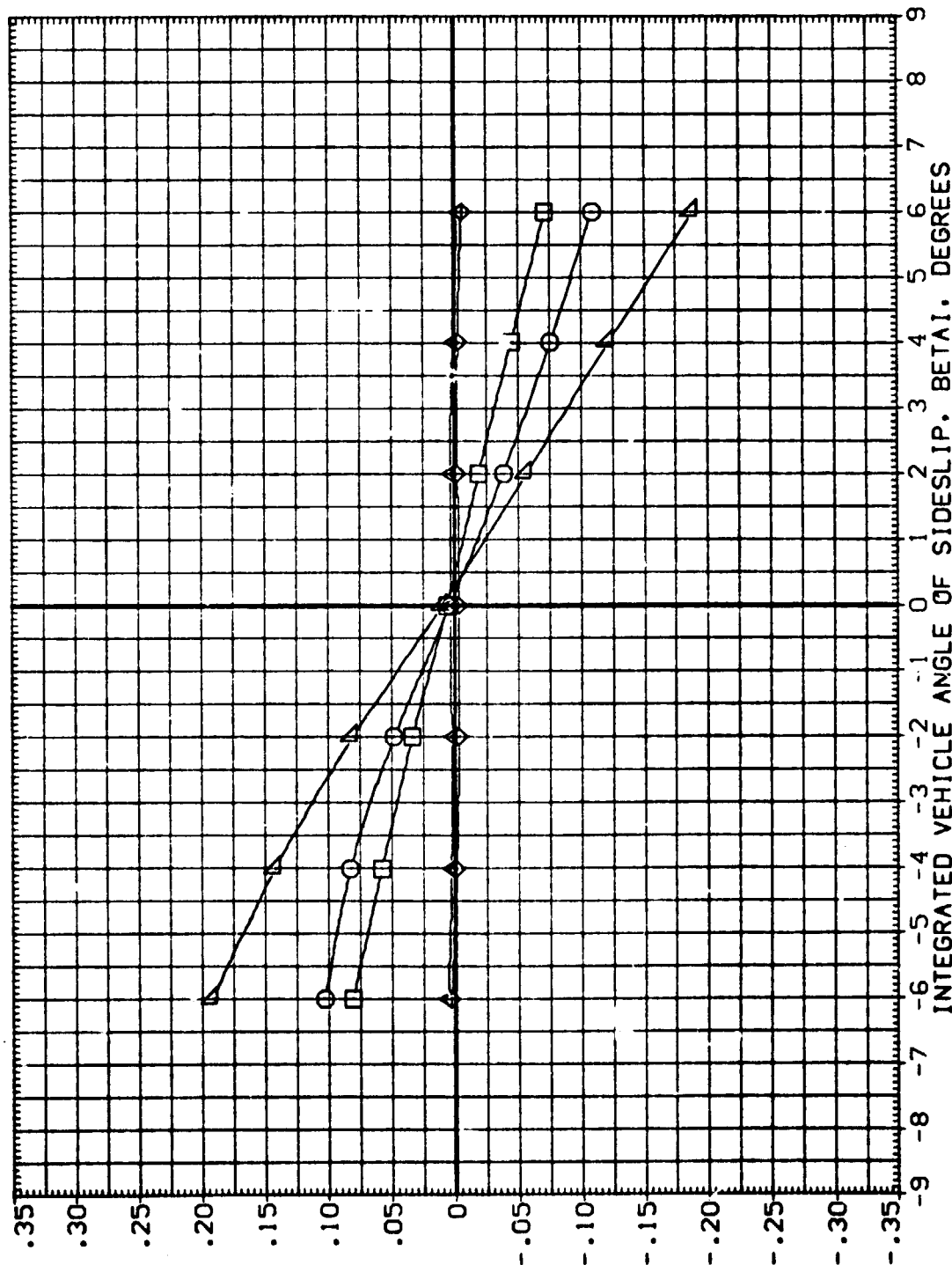


FIG. 17 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4

(B) ALPHA = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LE1035)	AMES97-019C(1A81) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LE1135)	AMES97-019C(1A81) LVAP TANK - ALL HL SEALED	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LE1L35)	AMES97-019C(1A81) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LE1R35)	AMES97-019C(1A81) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	1.550	.000	XMRP 976.0000 IN. XT
(LE1135)	AMES97-019C(1A81) LVAP INT VEH ALL HL SEALED	8.000	-4.000	1.550	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

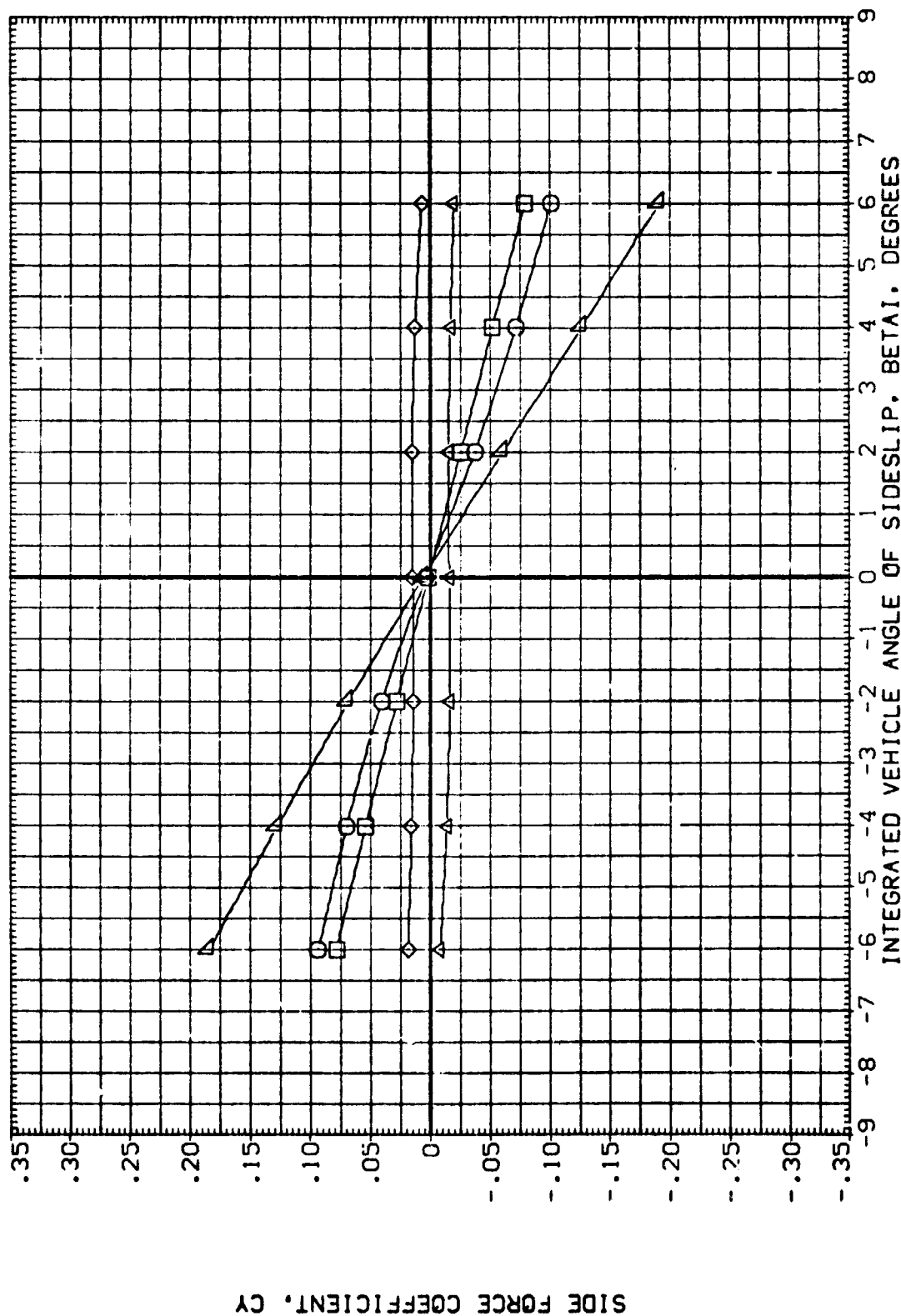


FIG. 17 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=1.55$ $DEV=8/-4$

(C) $\alpha = -2.00$

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(LE1035)	AMES97-019(1A81) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	1.550	.000	SREF 2590.0000 SQ.FT.
(LE1135)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LE1235)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LE1335)	AMES97-019(1A81) LVAP R-LRB ALL HL SEALED	8.000	-4.000	1.550	.000	XMRP 976.0000 IN. XT
(LE1435)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	-4.000	1.550	.000	YMRP .0000 IN. YT
(LE1535)						ZMRP 400.0000 IN. ZT
						SCALE .0300

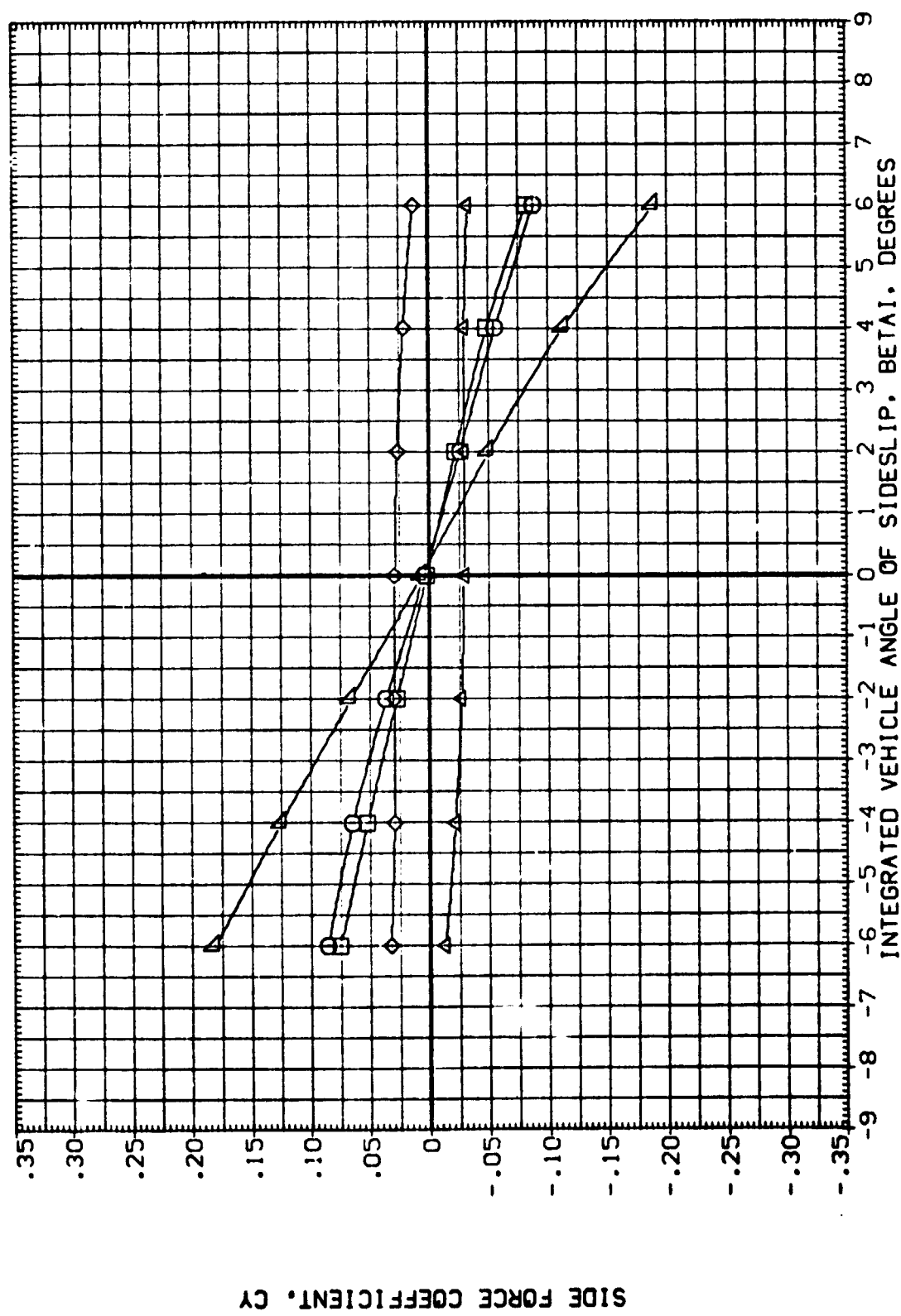


FIG. 17 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=1.55$ DEV=8/-4
 (O)ALPHA= .00
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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LE1035)	AMES97-019(IAB1) LVAP ORBITTER-ALL HL SEALED	8.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LE1135)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LE1235)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LE1335)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	8.000	-4.000	1.550	.000	YMRP 976.0000 IN.
(LE1435)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	1.550	.000	ZMRP 400.0000 IN.
						SCALE .0300

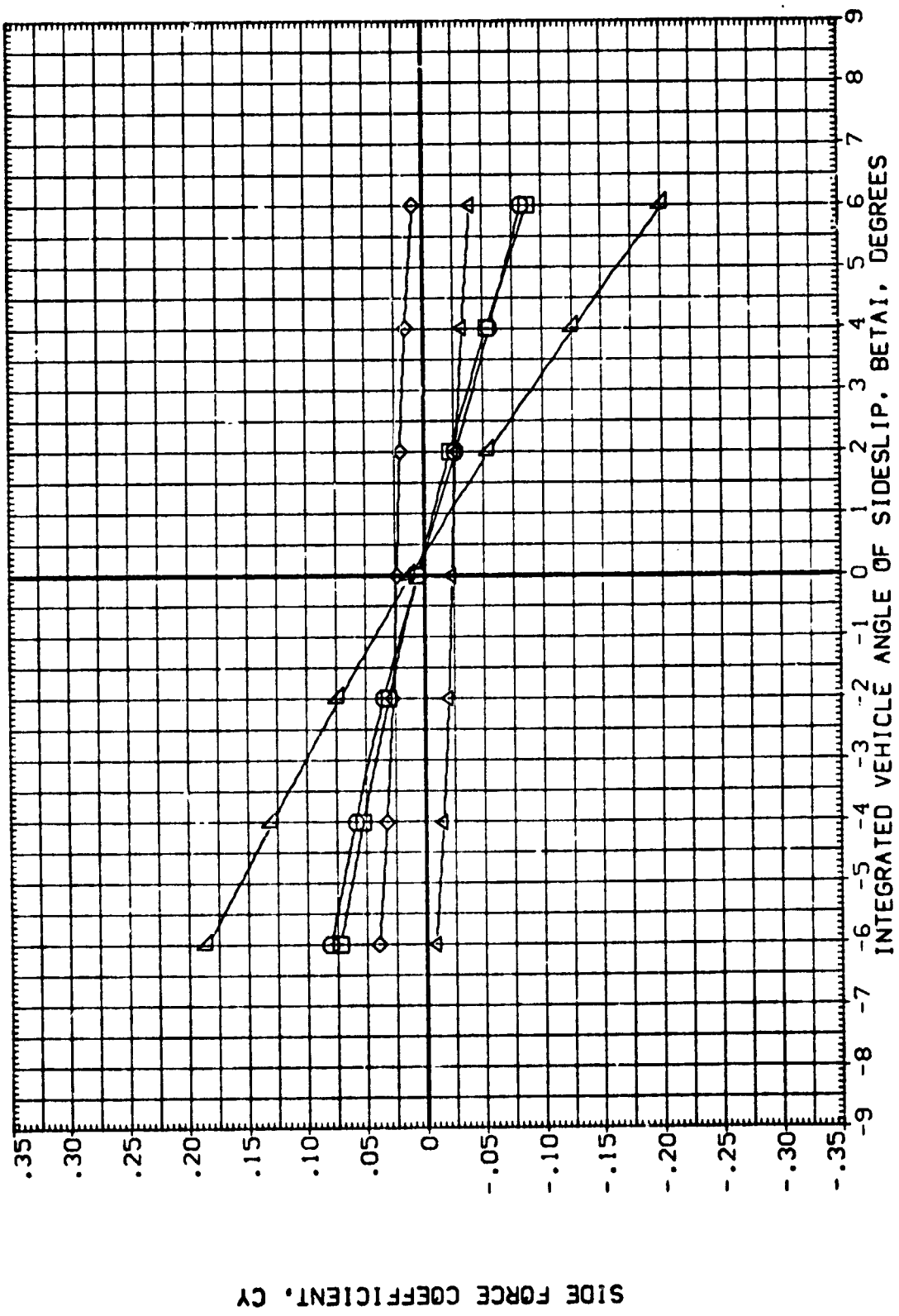


FIG. 17 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4
(E)ALPHA1= 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LE1035)	AMES97-019(IAB1) LVAP ORBITTER-ALL HL SEALED	8.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LE1135)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LE1235)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LE1335)	AMES97-019(IAB1) LVAP R-198 ALL HL SEALED	8.000	-4.000	1.550	.000	XMRP 976.0000 IN. XT
(LE1435)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	1.550	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

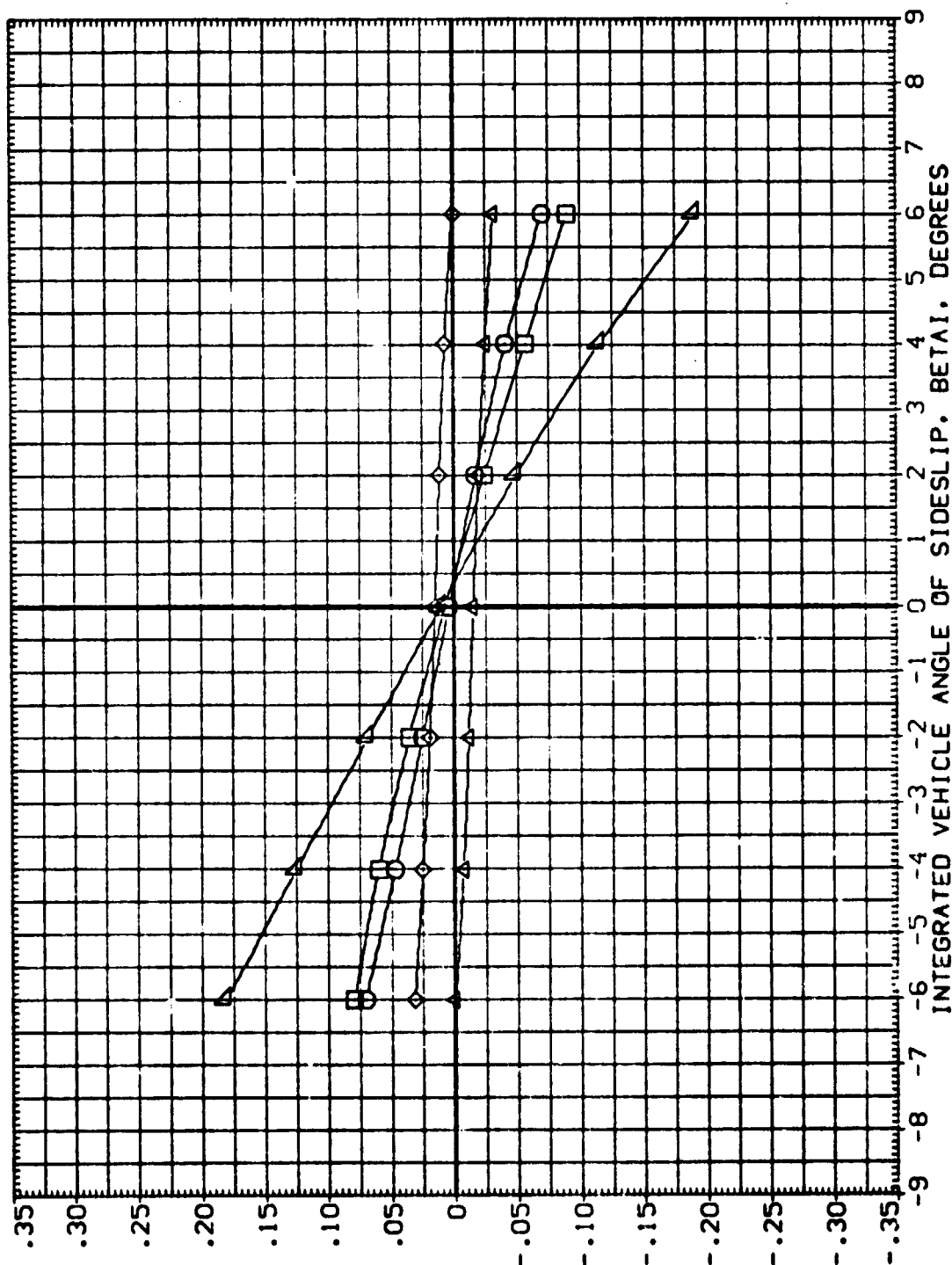


FIG. 17 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4
(F)ALPHA1= 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(LE1035)	AMES97-019(IAB1) LVAP DRBITER-ALL HL SEALED	8.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LE1135)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LE1135)	AMES97-019(IAB1) LVAP L-SPB - ALL HL SEALED	8.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LE1135)	AMES97-019(IAB1) LVAP R-DRB - ALL HL SEALED	8.000	-4.000	1.550	.000	XMRP 976.0000 IN. XT
(LE1135)	AMES97-019(IAB1) LVAP INT VEM ALL HL SEALED	8.000	-4.000	1.550	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

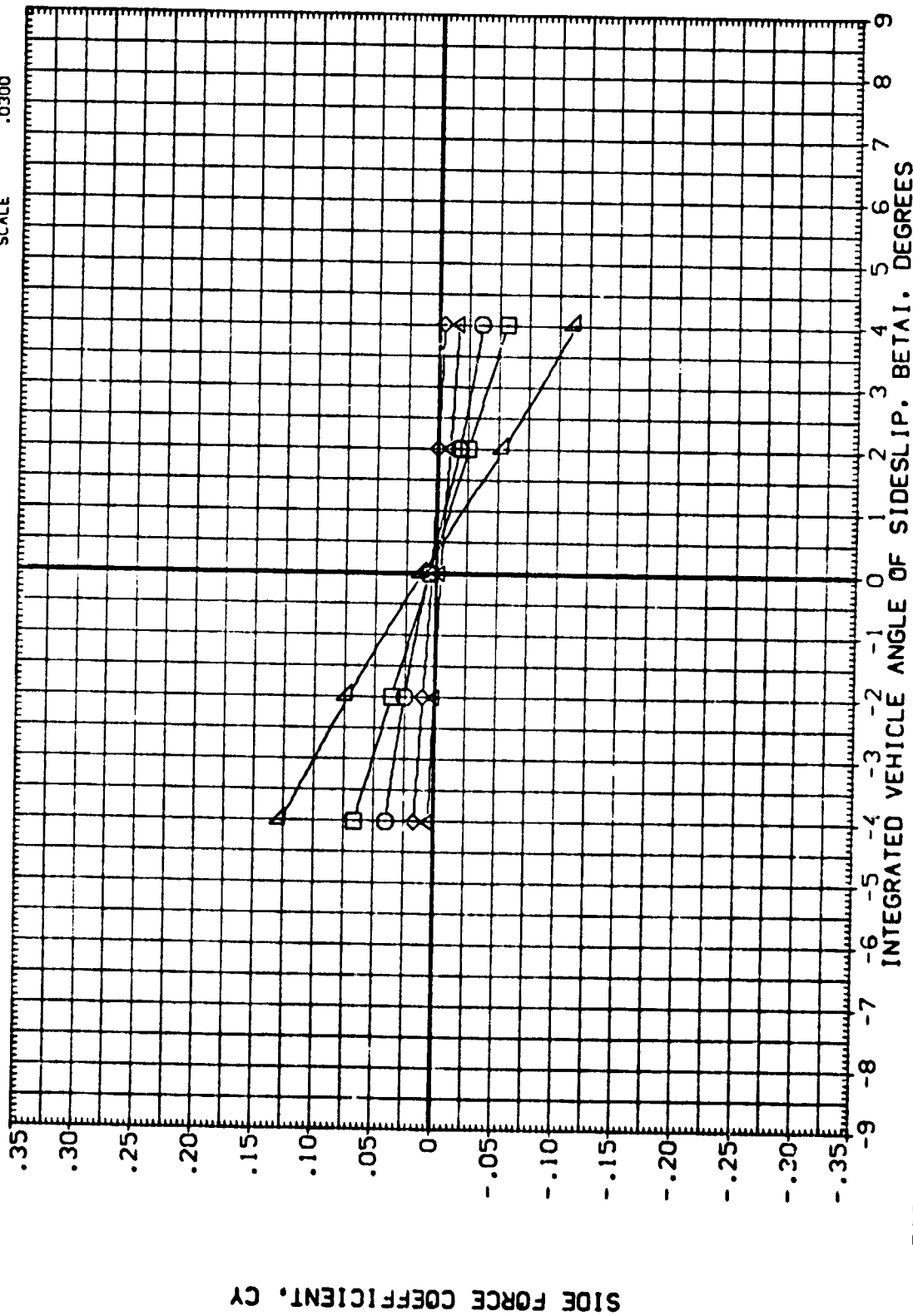


FIG. 17 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS. M=1.55 DEV=8/-4

(G)ALPHA= 6.00

DATA SET SYMBOL
(LET075)
(LET135)
(LET135)
(LET135)
(LET135)
(LET135)

CONFIGURATION DESCRIPTION
APES97-0191(A81) LVAP DRGITER-ALL ML SEALED
APES97-0191(A81) LVAP TANK - ALL ML SEALED
APES97-0191(A81) LVAP L-SP8 - ALL ML SEALED
APES97-0191(A81) LVAP R-LRD ALL ML SEALED
APES97-0191(A81) LVAP INT VEH ALL ML SEALED

ELV-1B 8.000
8.000
8.000
8.000
8.000

ELV-08 -4.000
-4.000
-4.000
-4.000
-4.000

MACH 1.550
1.550
1.550
1.550
1.550

SPOBRK .000
.000
.000
.000
.000

REFERENCE INFORMATION
SREF 2690.0000 SQ.FT.
LREF 1297.0000 IN.
BREF 1297.0000 IN.
XMRP 976.0000 IN. XT
YMRP 400.0000 IN. YT
ZMRP 400.0000 IN. ZT
SCALE .0300

FOREBODY YAWING MOMENT COEFFICIENT, C_{YM}

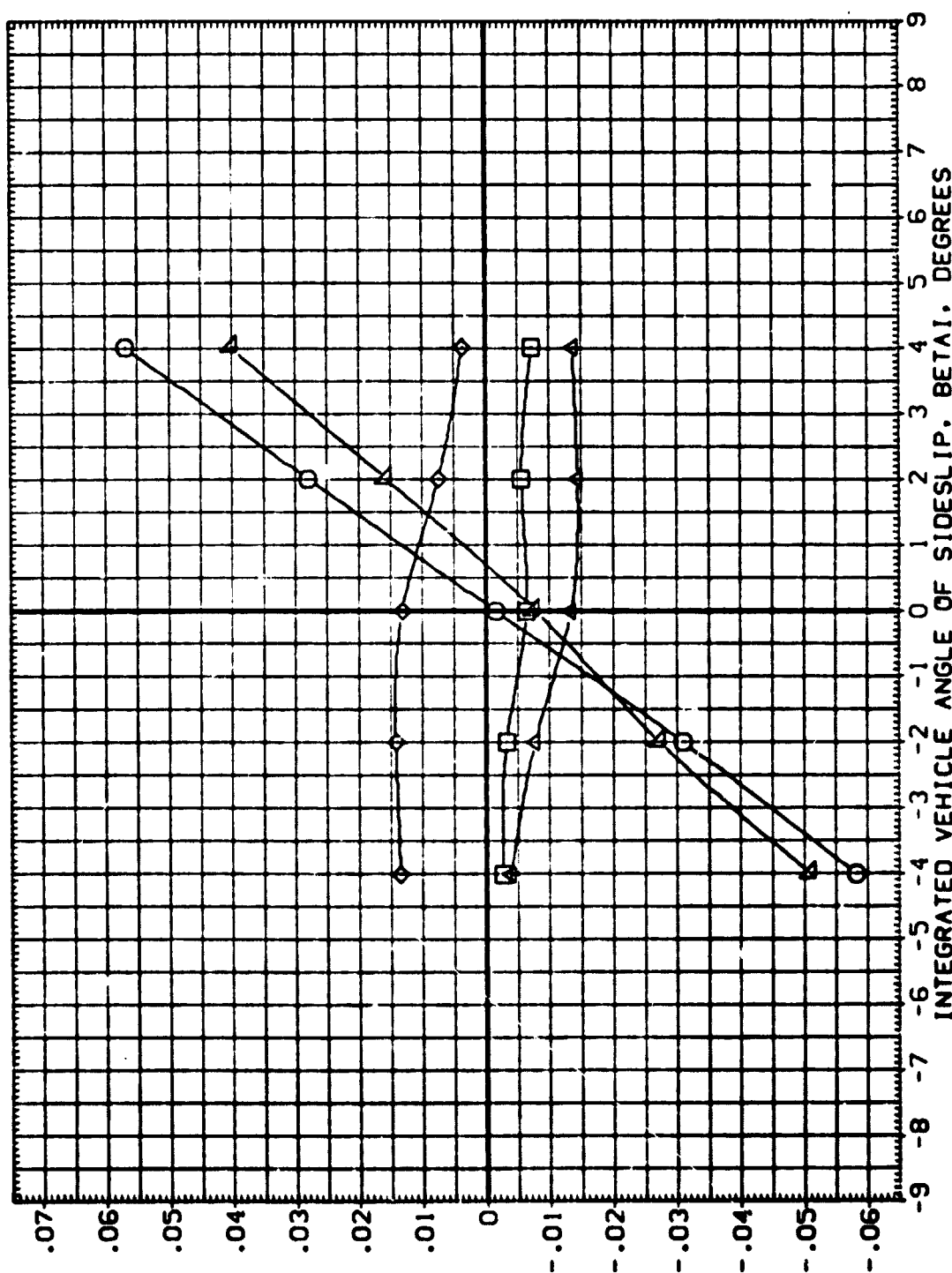


FIG. 17 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4
(A) ALPHA= -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRBK	REFERENCE INFORMATION
(LE1035)	AMES97-019(IAB1) LVAP ORB1 TER-ALL ML SEALED	8.000	-4.000	1.550	.000	SREF 2690.0000 50.FT.
(LE1135)	AMES97-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LE1235)	AMES97-019(IAB1) LVAP L-SPB - ALL ML SEALED	8.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LE1335)	AMES97-019(IAB1) LVAP R-LRB - ALL ML SEALED	8.000	-4.000	1.550	.000	XMRP 976.0000 IN.
(LE1435)	AMES97-019(IAB1) LVAP INT VEH ALL ML SEALED	8.000	-4.000	1.550	.000	YMRP .0000 IN.
						ZMRP .0300 IN.
						SCALE

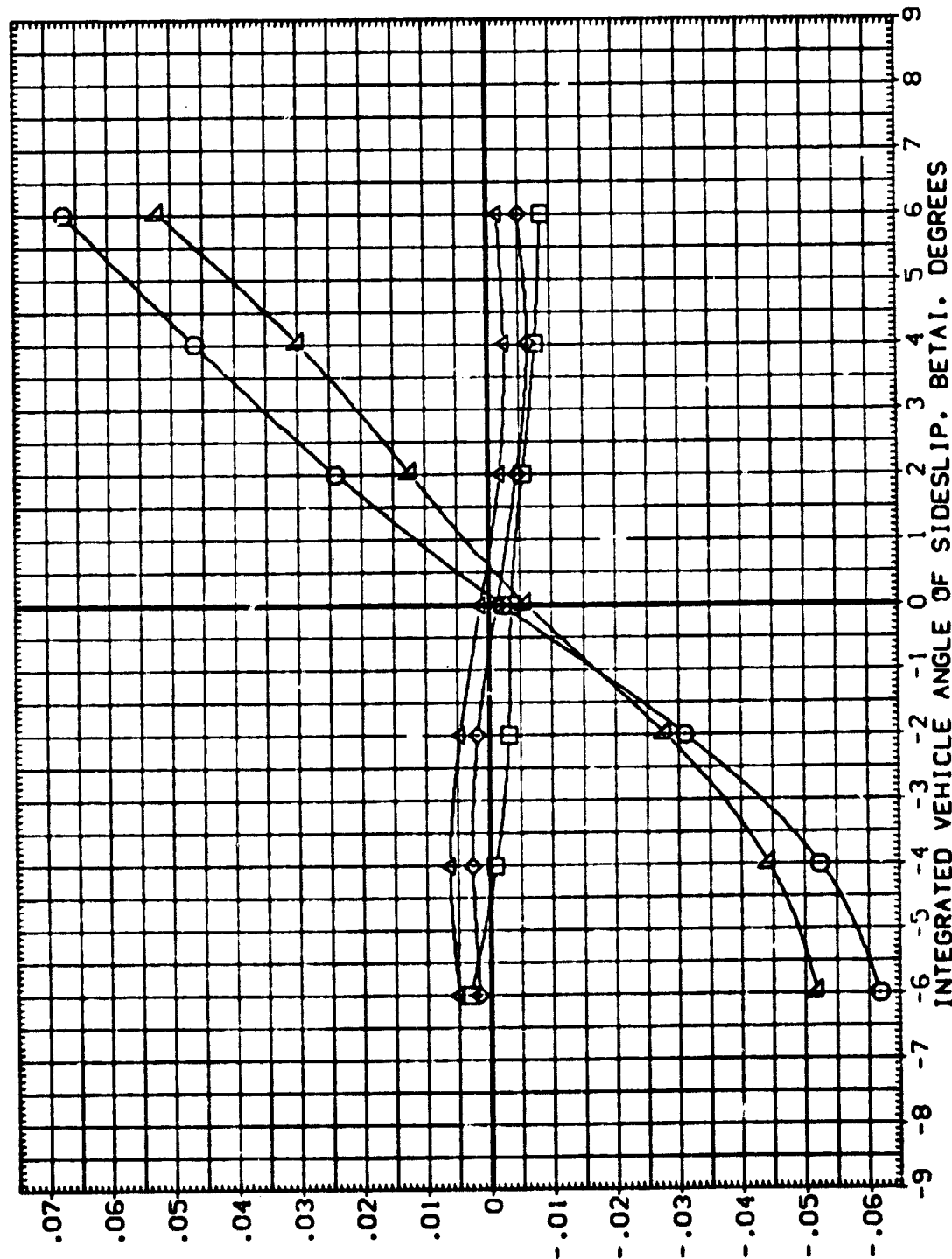


FIG. 17 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS. $M=1.55$ $DEV=8/-4$

DATA SET SYMBOL: (LET135) (LET135) (LET135) (LET135) (LET135)

CONFIGURATION DESCRIPTION: ORBITER-ALL ML SEALED TANK - ALL ML SEALED L-SRB - ALL ML SEALED R-LRB - ALL ML SEALED LVAP INT VEM ALL ML SEALED

ELV-1B: 8.000 8.000 8.000 8.000 8.000 8.000

ELV-08: -4.000 -4.000 -4.000 -4.000 -4.000 -4.000

MACH: 1.550 1.550 1.550 1.550 1.550 1.550

SPOBRK: .000 .000 .000 .000 .000 .000

REFERENCE INFORMATION: SREF 2690.0000 SO.FT. 1297.0000 IN. LREF 1297.0000 IN. BREF 1297.0000 IN. XTRP 976.0000 IN. YTRP 400.0000 IN. ZTRP 400.0000 IN. SCALE .0300

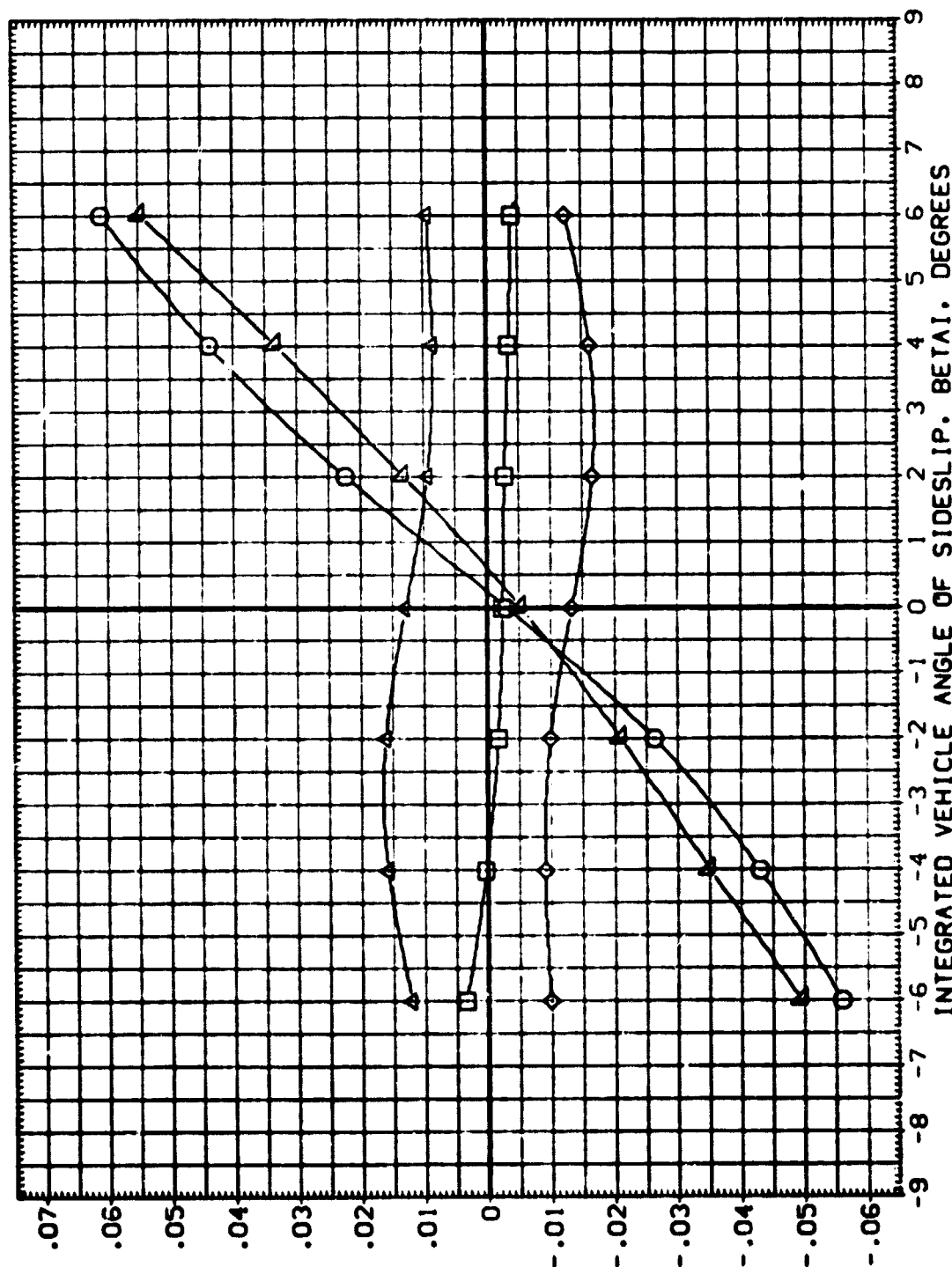


FIG. 17 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4
(C)ALPHA= -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-19	MACH	SPOBRK	REFERENCE INFORMATION
(LE1035)	AVE597-0191(A81) LVAP ORBITED-ALL ML SEALED	8.000	-4.000	1.550	.000	SREF 2650.0000 SO.FT.
(LE1135)	AVE597-0191(A81) LVAP TANK ALL ML SEALED	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LE1235)	AVE597-0191(A81) LVAP L-SRB ALL ML SEALED	8.000	-4.000	1.550	.000	GREF 1297.0000 IN.
(LE1335)	AVE597-0191(A81) LVAP R-LRB ALL ML SEALED	8.000	-4.000	1.550	.000	XMRP 976.0000 IN. XT
(LE1435)	AVE597-0191(A81) LVAP INT VEH ALL ML SEALED	8.000	-4.000	1.550	.000	YMRP .0000 IN. YT
(LE1535)						ZMRP 400.0000 IN. ZT
						SCALE .0300

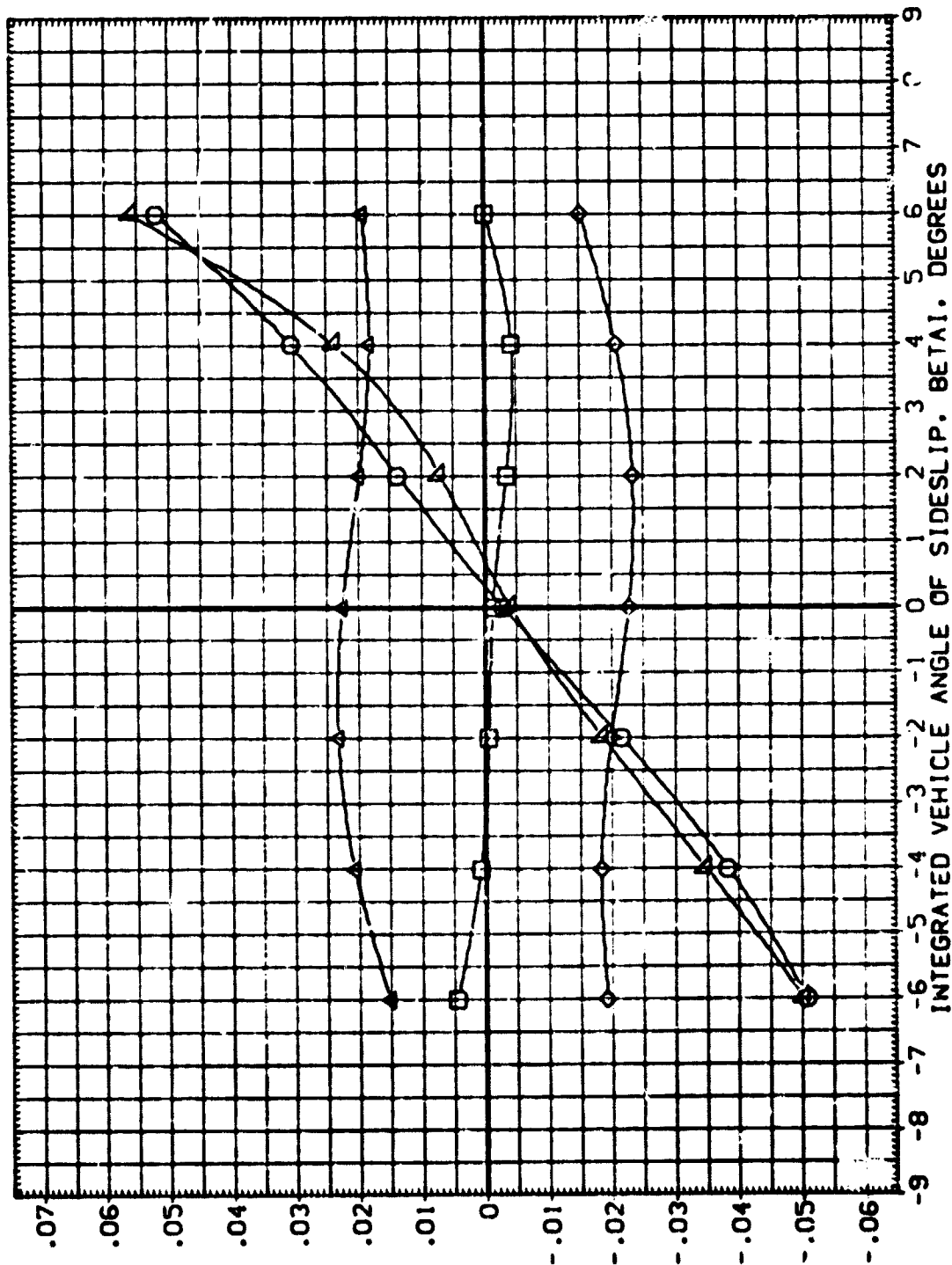


FIG. 17 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DELV=8/-4
(O) ALPHA= .00

DATA SET SYMBOL CONFIGURATION DESCRIPTION ORBITER-ALL ML SEALED

(LE10J3) AMES97-019(IAB1) LVAP TANK - ALL ML SEALED

(LE11J3) AMES97-019(IAB1) LVAP L-SRB - ALL ML SEALED

(LE12J3) AMES97-019(IAB1) LVAP R-LRB - ALL ML SEALED

(LE13J3) AMES97-019(IAB1) LVAP INT VEH ALL ML SEALED

(LE14J3) AMES97-019(IAB1) LVAP INT VEH ALL ML SEALED

ELV-1B ELV-0B MACH SPOBRK REFERENCE INFORMATION

8.000 -4.000 1.550 .000 SREF 2690.0000 SQ.FT.

8.000 -4.000 1.550 .000 LREF 1297.0000 IN.

8.000 -4.000 1.550 .000 BREF 1297.0000 IN.

8.000 -4.000 1.550 .000 YMRP 976.0000 IN.

8.000 -4.000 1.550 .000 ZMRP 400.0000 IN.

SCALE .0300

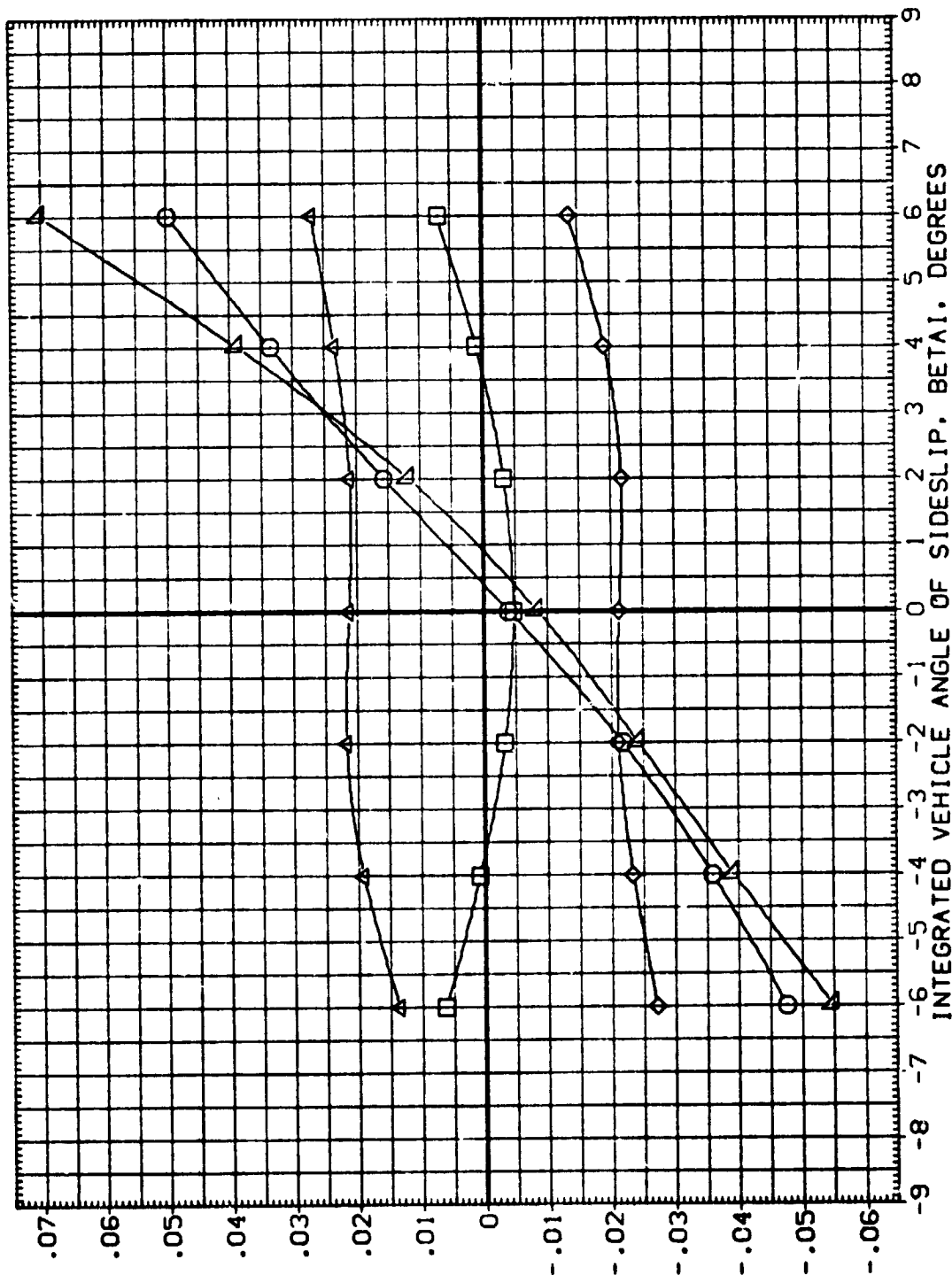


FIG. 17 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4
(E)ALPHA= 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPOBRK	REFERENCE INFORMATION
(LE1035)	AMES97-019(IAB1) LVAP CRBITER-ALL HL SEALED	8.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LE1135)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LE1235)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LE1335)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	1.550	.000	XMRP 976.0000 IN. XT
(LE1435)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	1.550	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

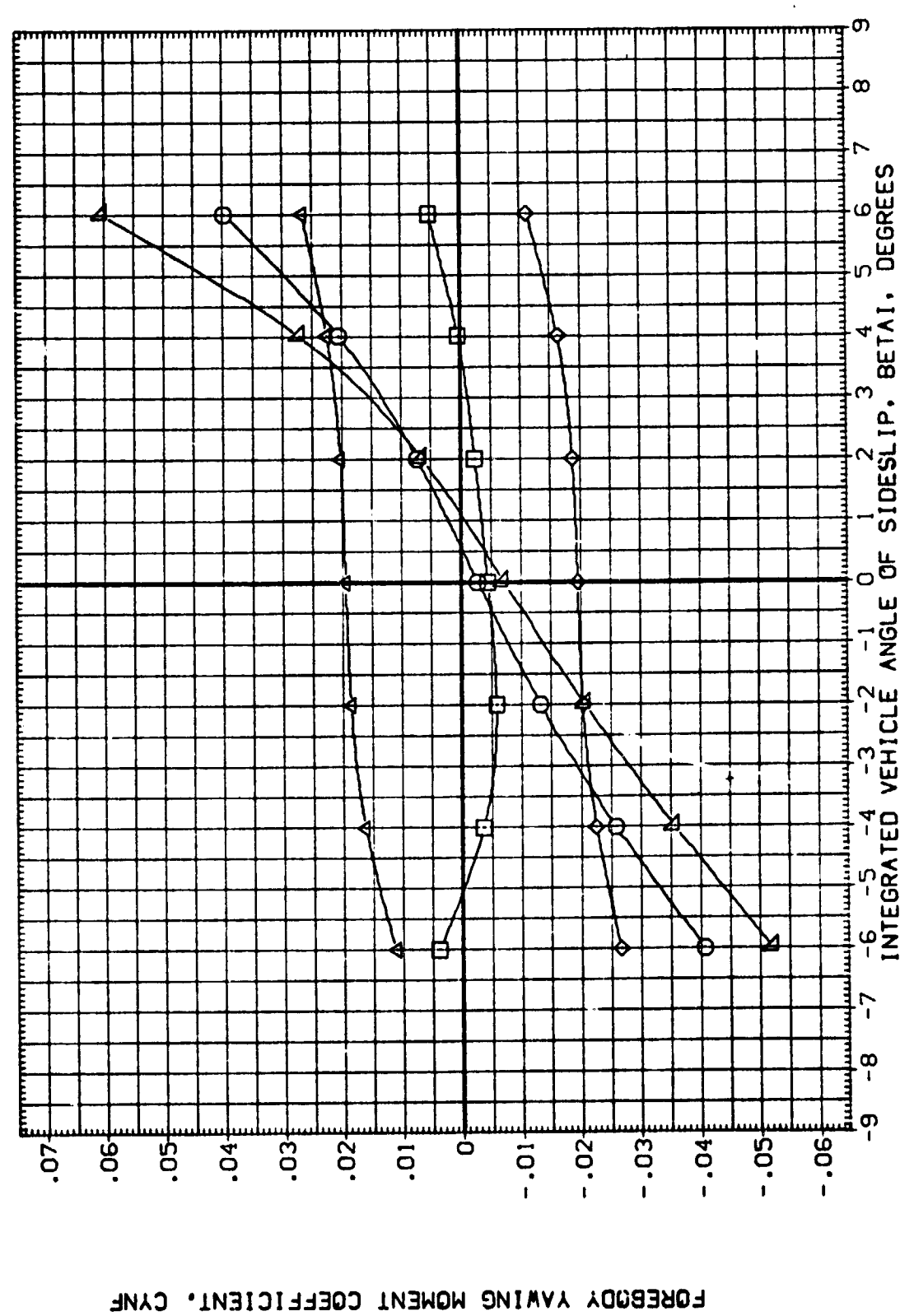


FIG. 17 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS. M=1.55 DEV=8/-4
(F)ALPHA= 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LE1035)	AME597-019(1A81) LVAP ORBITER-ALL ML SEALED	8.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LE1135)	AME597-019(1A81) LVAP TANK - ALL ML SEALED	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LE1235)	AME597-019(1A81) LVAP L-SRB - ALL ML SEALED	8.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LE1335)	AME597-019(1A81) LVAP R-LRB ALL ML SEALED	8.000	-4.000	1.550	.000	XMRP 976.0000 IN. XT
(LE1435)	AME597-019(1A81) LVAP INT VEH ALL ML SEALED	8.000	-4.000	1.550	.000	YMRP 400.0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

FOREBODY YAWING MOMENT COEFFICIENT, CYNF

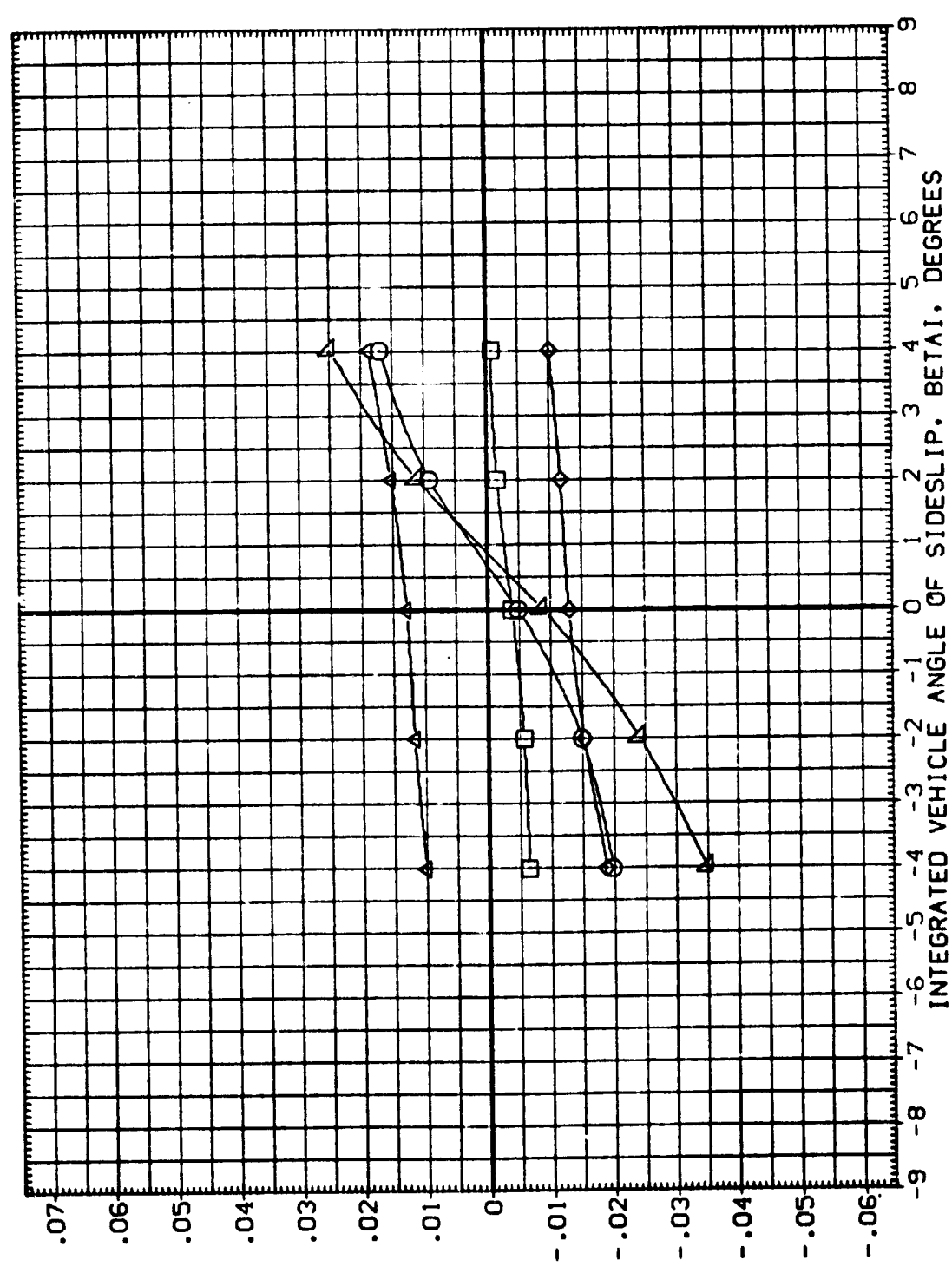


FIG. 17 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4
(G)ALPHA1= 6.00

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(LETO35)	□	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LETO35)	□	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LETO35)	□	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	1.550	.000	SREF 1297.0000 IN.
(LETO35)	□	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	1.550	.000	XMRP 976.0000 IN.
(LETO35)	□	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	1.550	.000	YMRP .0000 IN.
(LETO35)	□						ZMRP 400.0000 IN.
							SCALE .0300

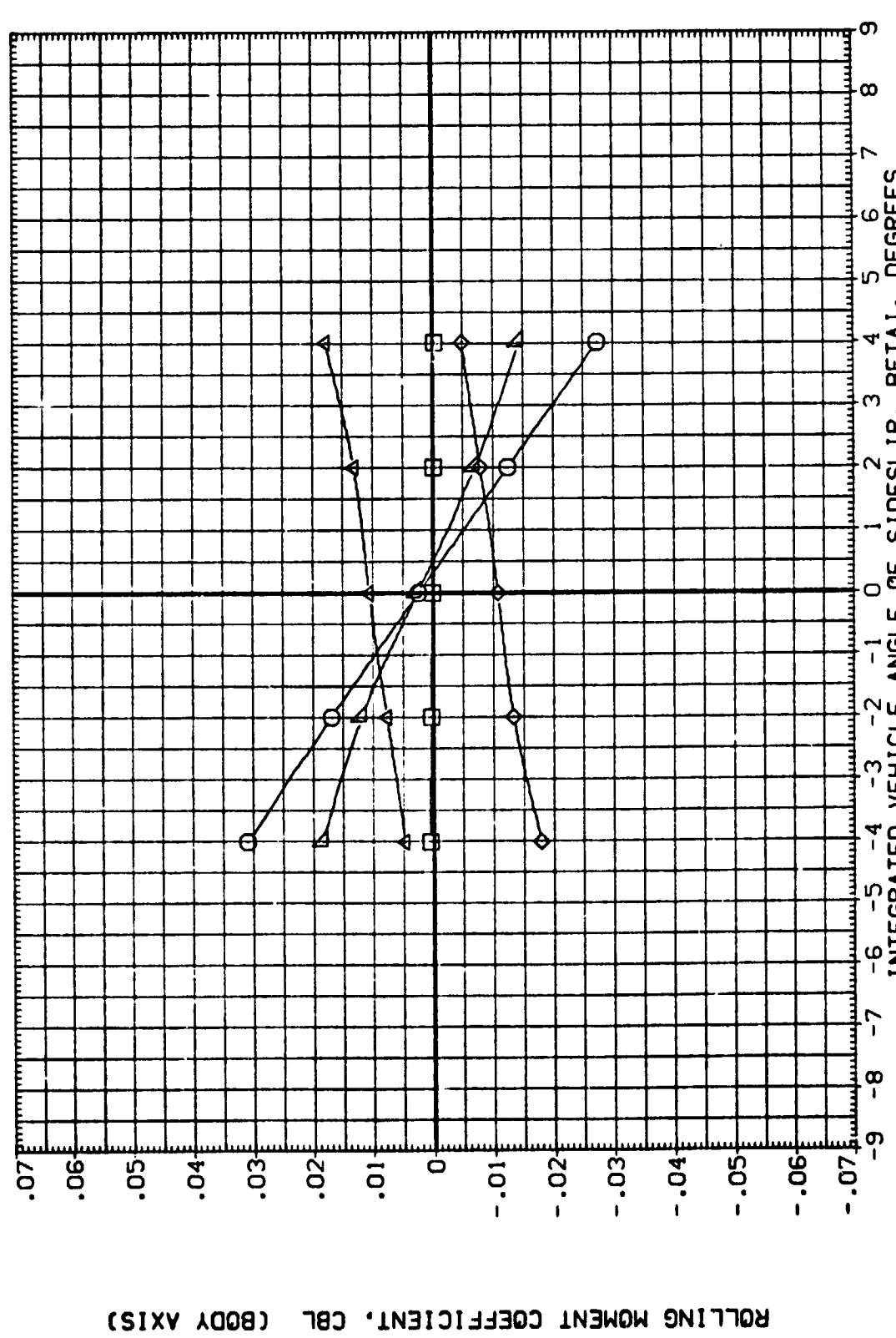


FIG. 17 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4
 (ALPHA) = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LETO35)	AME597-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LETT35)	AME597-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LETL35)	AME597-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LETR35)	AME597-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	1.550	.000	AMRP 976.0000 IN. XT
(LETT35)	AME597-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	1.550	.000	YMRP .0000 IN. YT
(LETT35)						ZMRP 400.0000 IN. ZT
						SCALE .0300

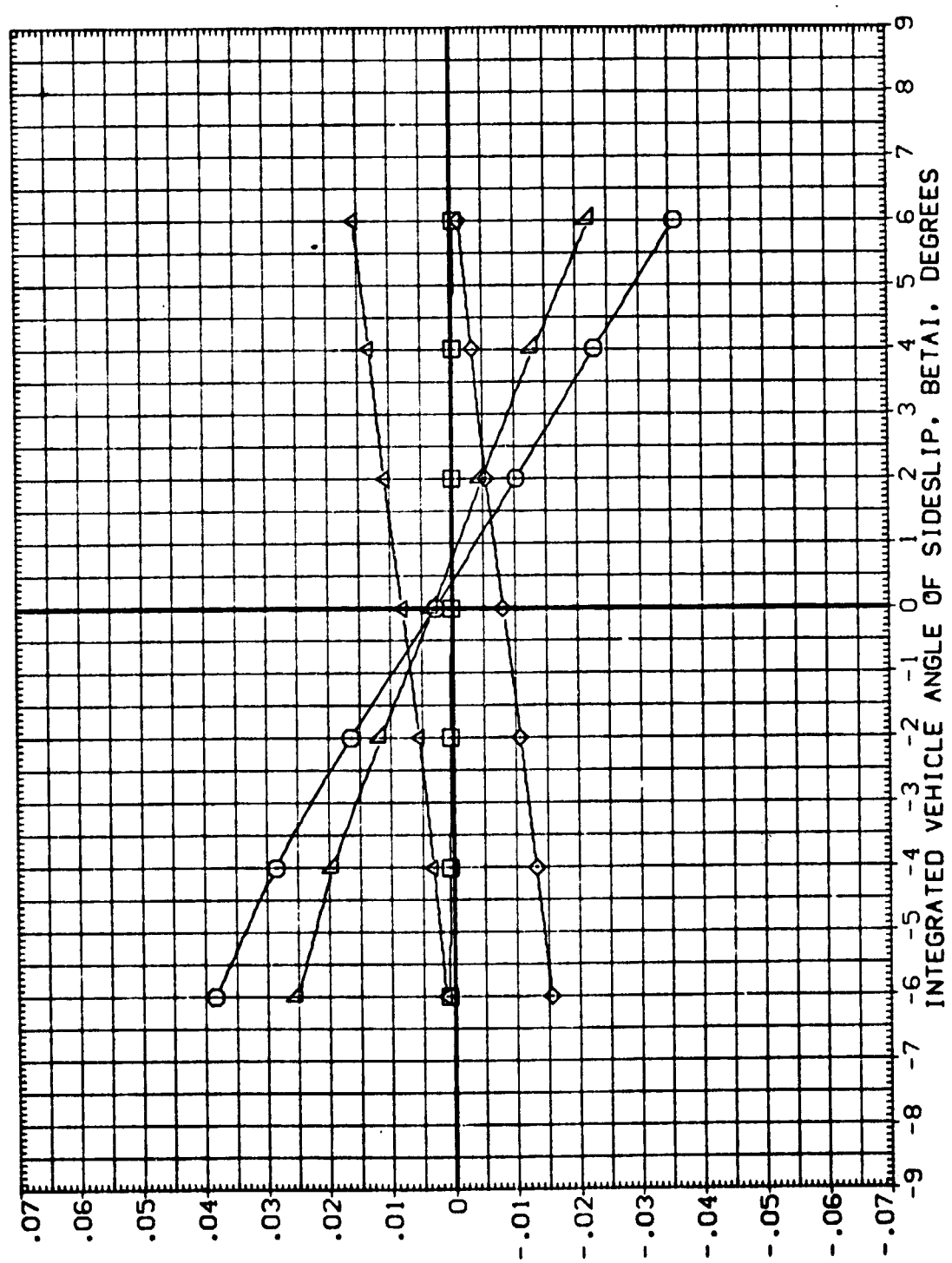


FIG. 17 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4
 (B) ALPHA= -4.00

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

DATA SET SYMBOL	SYMBOL
(LET035)	
(LET135)	
(LETL35)	
(LETR35)	
(LETI35)	

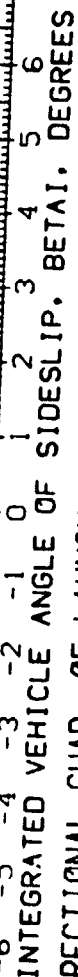


FIG. 17 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=1.55$ DEV=8/-4
(C)ALPHA= -2.00

	CONFIGURATION	DESCRIPTION
ORRB	AMES97-019(IAB1)	LVP
TANR	AMES97-019(IAB1)	LVP
L-SFB	AMES97-019(IAB1)	LVP
R-LRB	AMES97-019(IAB1)	LVP
INT VP	AMES97-019(IAB1)	LVP

ELV-1B	ELV-0B	MACH	SPDRBK	REFERENCE INFORMATION	
8.000	-4.000	1.550	.000	SREF	2690.0000 SQ.FT.
8.000	-4.000	1.550	.000	LREF	1297.0000 IN.
8.000	-4.000	1.550	.000	BREF	1297.0000 IN.
8.000	-4.000	1.550	.000	XRRP	976.0000 IN.
8.000	-4.000	1.550	.000	YRRP	.0000 IN.
8.000	-4.000	1.550	.000	ZRRP	400.0000 IN.
				SCALE	.0300

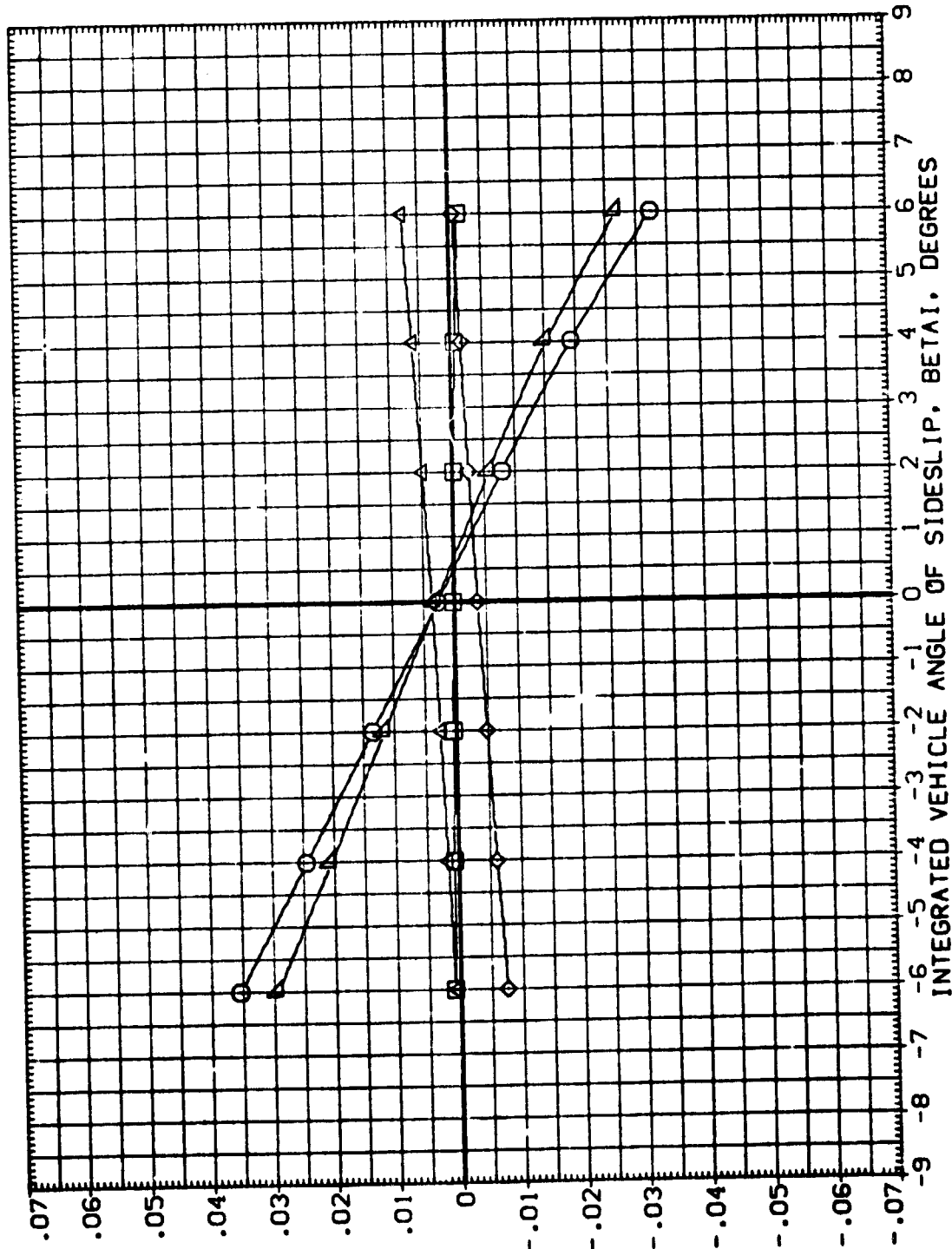


FIG. 17 | LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=1.55$ $DEV=8/-4$

$$(\mathbf{D})\mathbf{ALPHA} = .00$$

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ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LET135)	□	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	1.550	.000	SREF 2690.0000 SO.FT.
(LET135)	□	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LET135)	□	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LET135)	□	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	1.550	.000	XMRP 976.0000 IN. XT
(LET135)	□	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	1.550	.000	ZMRP 400.0000 IN. ZT
							SCALE .0300

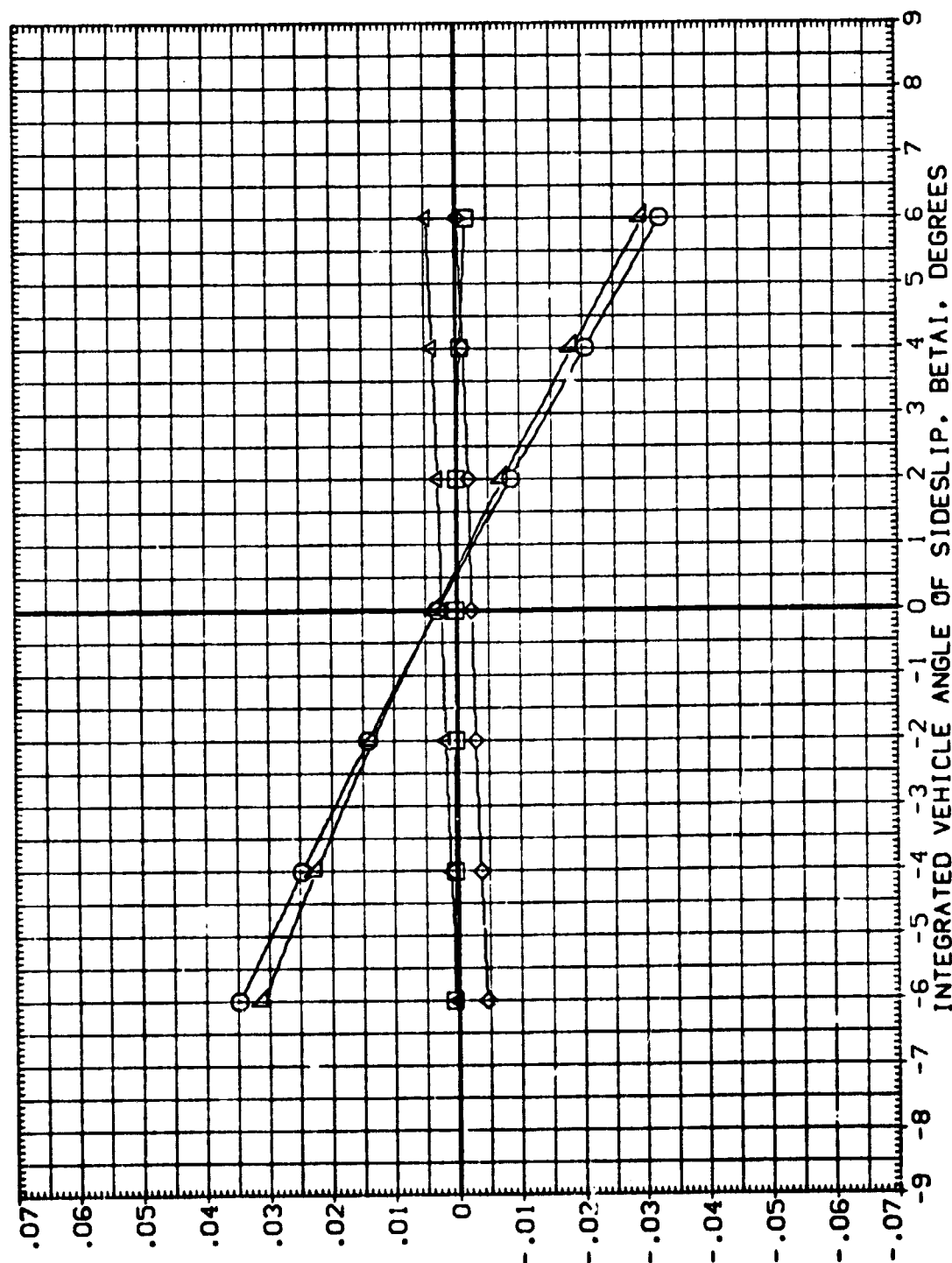


FIG. 17 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4

(E)ALPHA= 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(LETO75)	APES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	1.550	.000	SREF 2690.0000 SO.FT.
(LETT75)	APES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LETL75)	APES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LETR75)	APES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	1.550	.000	XMRP 976.0000 IN. XT
(LETT75)	APES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	1.550	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

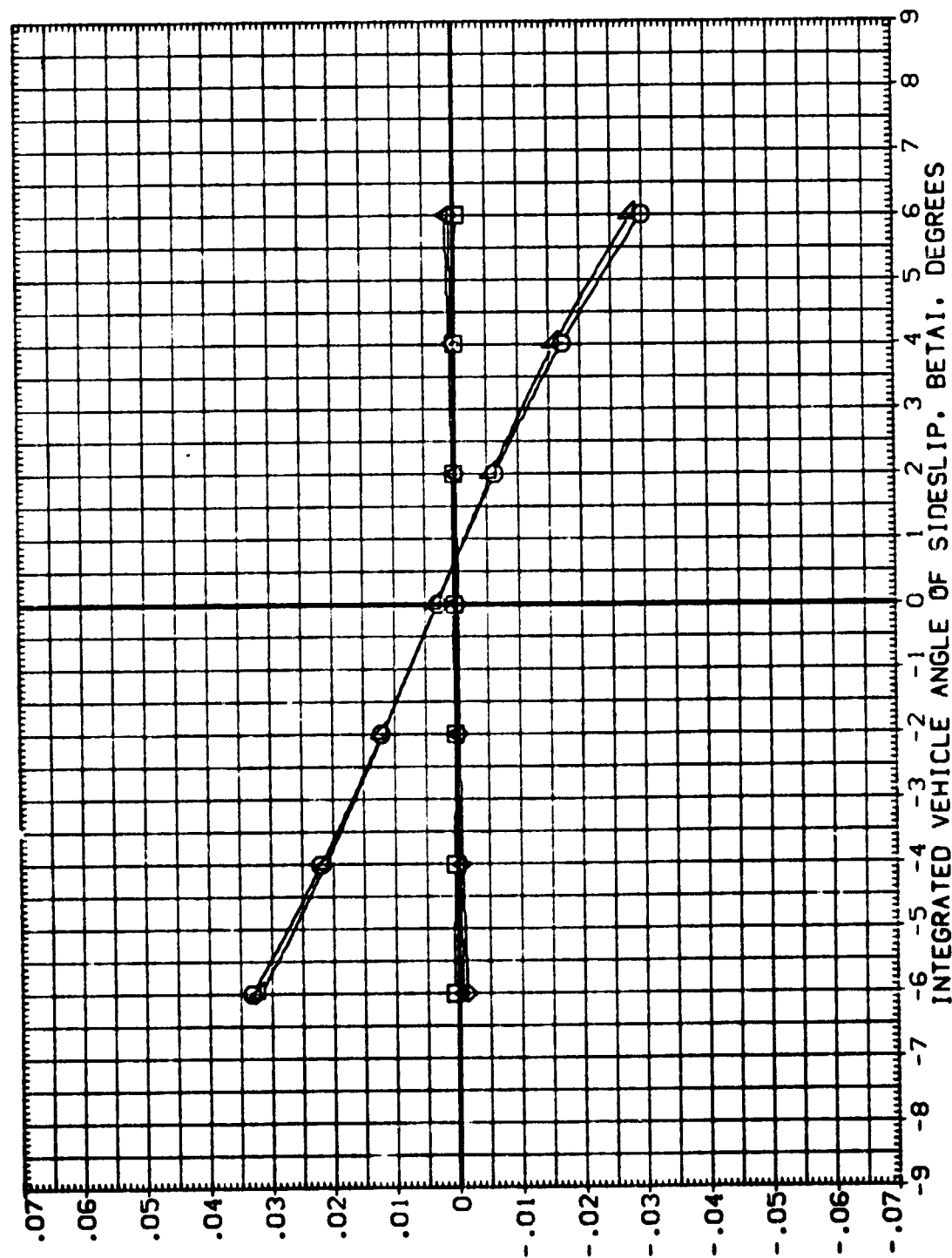


FIG. 17 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4

(F)ALPHA= 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-09	SPDRK	REFERENCE INFORMATION
(LET035)	AMES97-0191(A81) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	.000	SREF 2690.0000 SO.FT.
(LET135)	AMES97-0191(A81) LVAP TASK - ALL HL SEALED	8.000	-4.000	.000	LREF 1297.0000 IN.
(LET135)	AMES97-0191(A81) LVAP L-SPB - ALL HL SEALED	8.000	-4.000	.000	BREF 1297.0000 IN.
(LET135)	AMES97-0191(A81) LVAP R-LPB - ALL HL SEALED	8.000	-4.000	.000	XMRP .0730 IN. XT
(LET135)	AMES97-0191(A81) LVAP INT VEH ALL HL SEALED	8.000	-4.000	.000	ZMRP 400.0000 IN. YT
					SCALE .0300

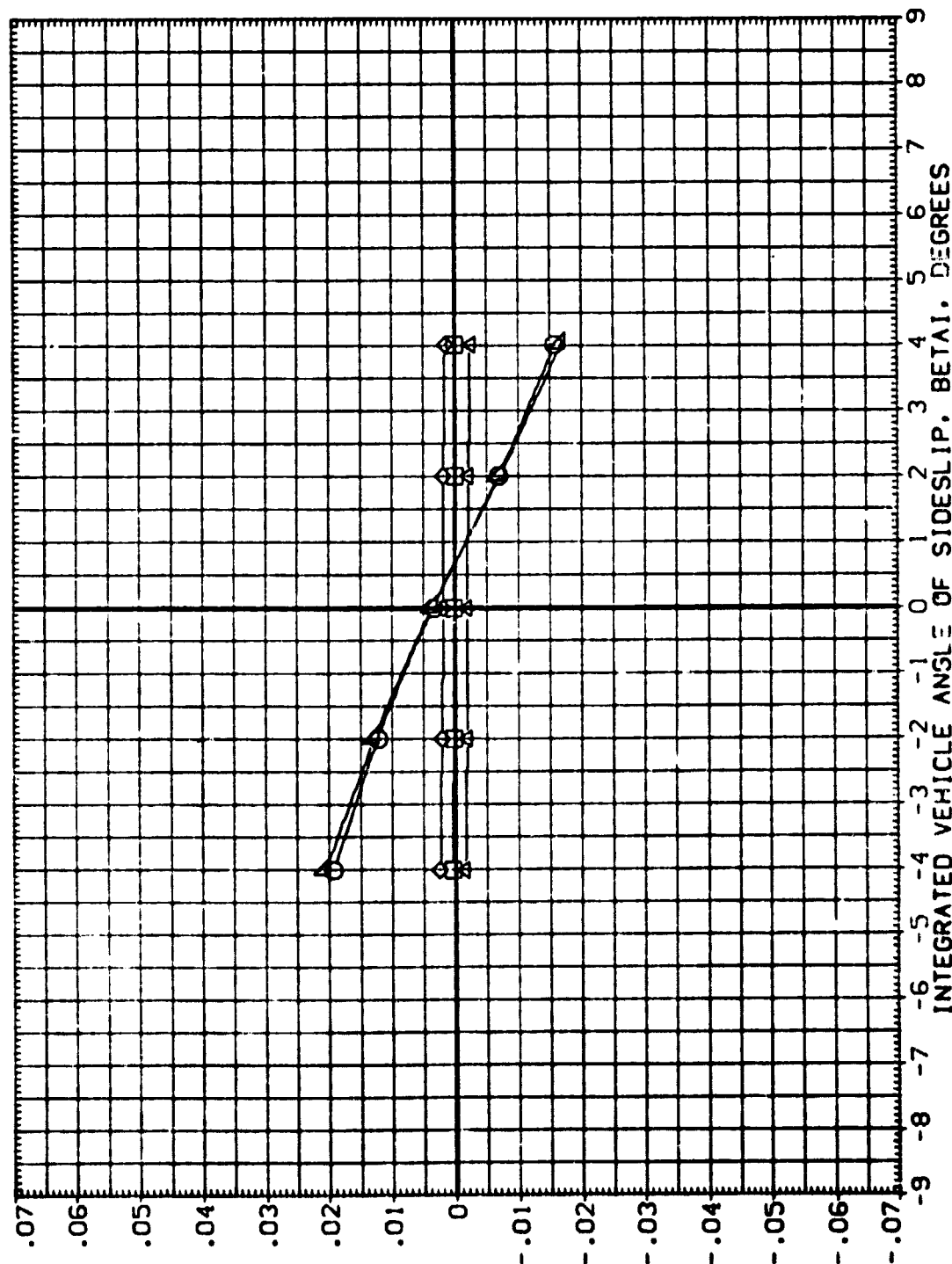


FIG. 17 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS. $M=1.55$ $DEV=8/-4$
 (G)ALPHA1= 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(LET075)	ANES97-019(IAB1) LVAP ORBITER-ALL ML SEALED	8.000	-4.000	1.550	.000	SREF 2690.0000
(LET175)	ANES97-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	-4.000	1.550	.000	LREF 1297.0000
(LET275)	ANES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	8.000	-4.000	1.550	.000	BREF 1297.0000
(LET375)	ANES97-019(IAB1) LVAP R-LRB - ALL ML SEALED	8.000	-4.000	1.550	.000	XMRP 976.0000
(LET475)	ANES97-019(IAB1) LVAP INT VEM ALL ML SEALED	8.000	-4.000	1.550	.000	YMRP 400.0000
						SCALE .0300

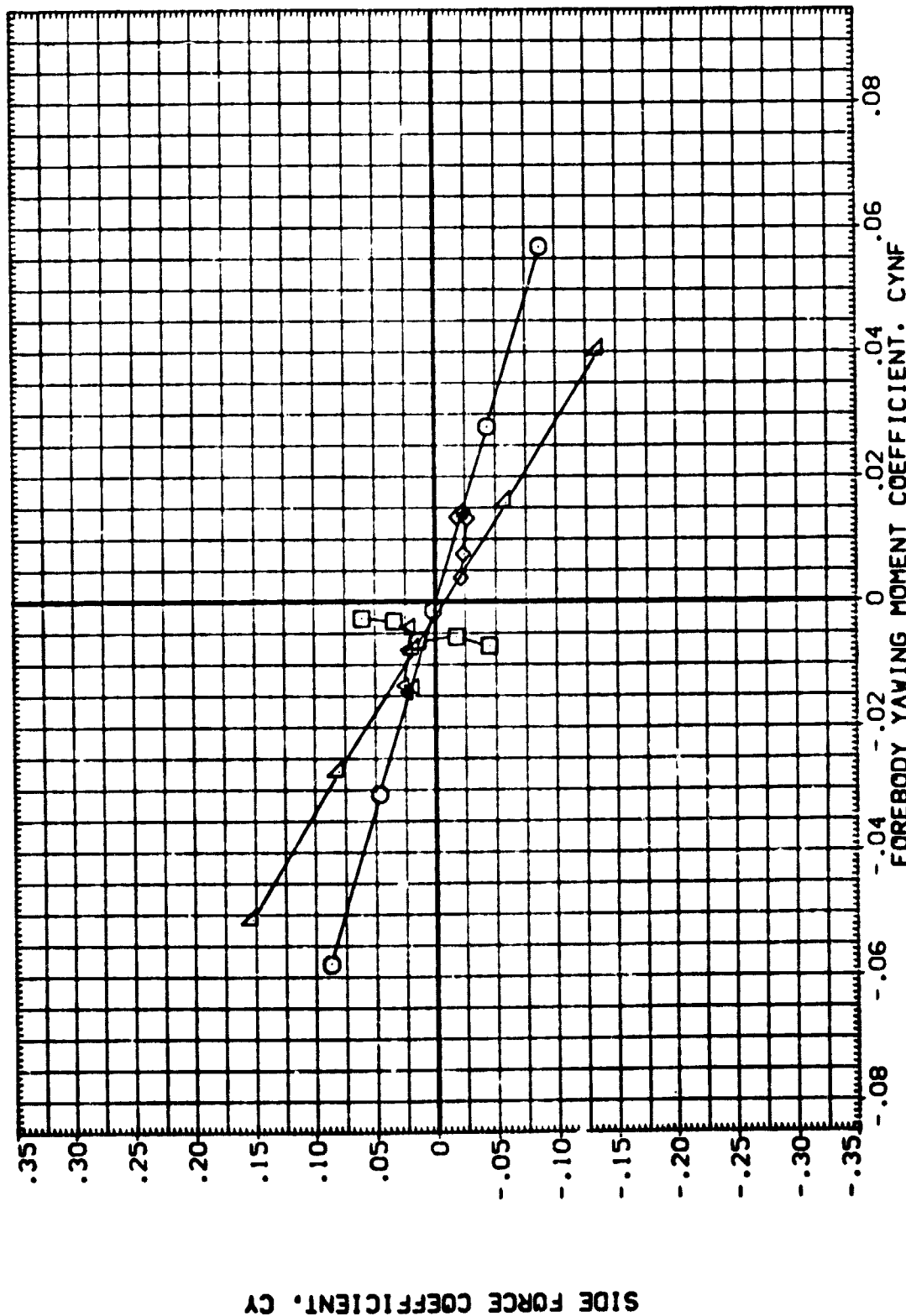


FIG. 17 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=1.55$ DEV=8/-4
(A) $\alpha_{HAI} = -6.00$

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LE1075)	AME597-0191(A81) LVAP ORB/ITER-ALL HL SEALED	8.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LE1175)	AME597-0191(A81) LVAP TANK - ALL HL SEALED	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LE1275)	AME597-0191(A81) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LE1375)	AME597-0191(A81) LVAP R-LRB ALL HL SEALED	8.000	-4.000	1.550	.000	XMRP 976.0000 IN.
(LE1475)	AME597-0191(A81) LVAP INT VEN ALL HL SEALED	8.000	-4.000	1.550	.000	YMRP 400.0000 IN.
(LE1575)						SCALE .0300

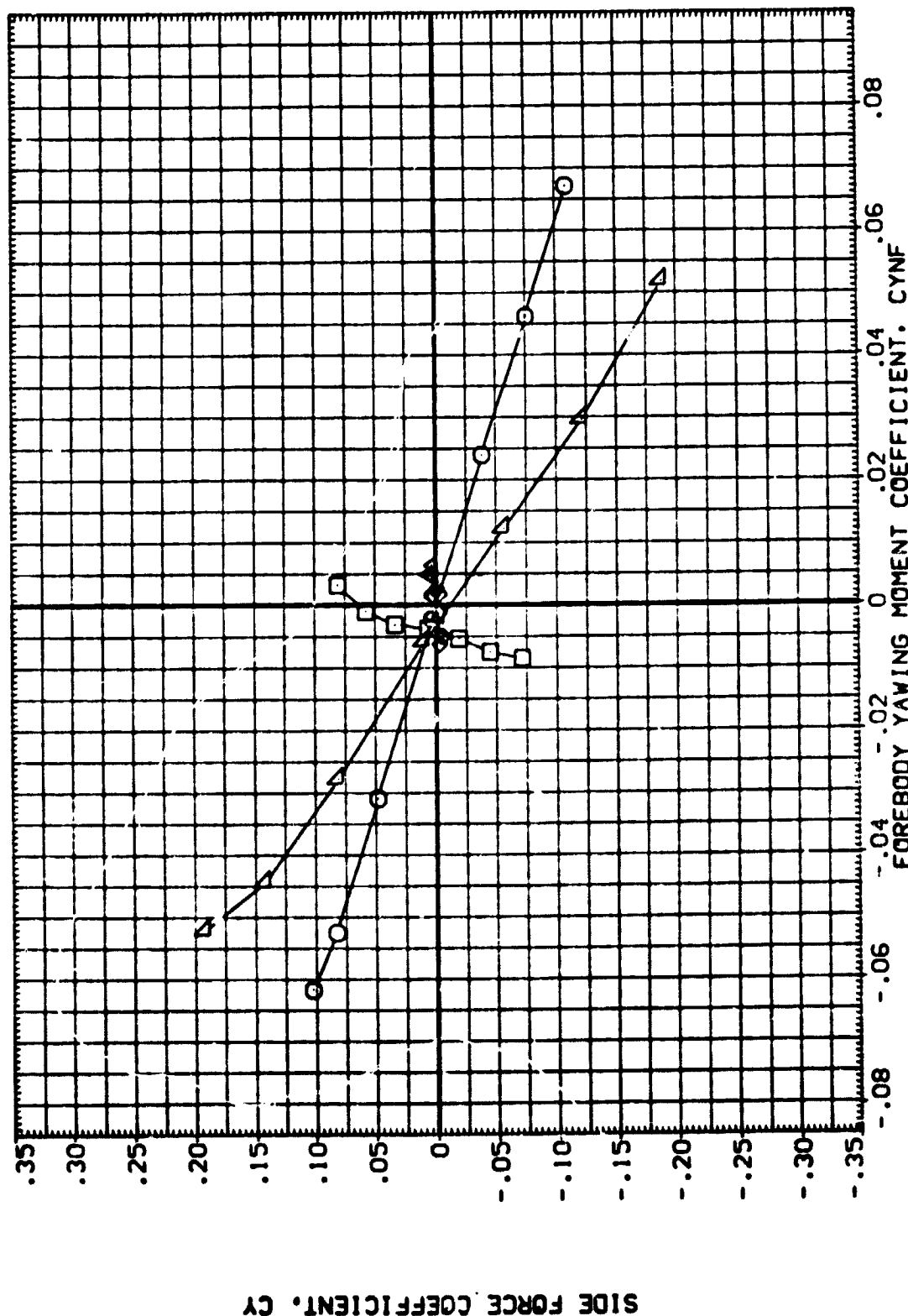


FIG. 17 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4
(B)ALPHA= -4.00

DATA: ET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(LE1025)	AMESB7-019(IAB1) LVAP ORBITTER-ALL ML SEALED	8.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LE1125)	AMESB7-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LE1135)	AMESB7-019(IAB1) LVAP L-SRB - ALL ML SEALED	8.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LE1145)	AMESB7-019(IAB1) LVAP B-LRB - ALL ML SEALED	8.000	-4.000	1.550	.000	AMRP 976.0000 IN.
(LE1155)	AMESB7-019(IAB1) LVAP INT VEH ALL ML SEALED	8.000	-4.000	1.550	.000	YMRP 400.0000 IN.
						SCALE .0300

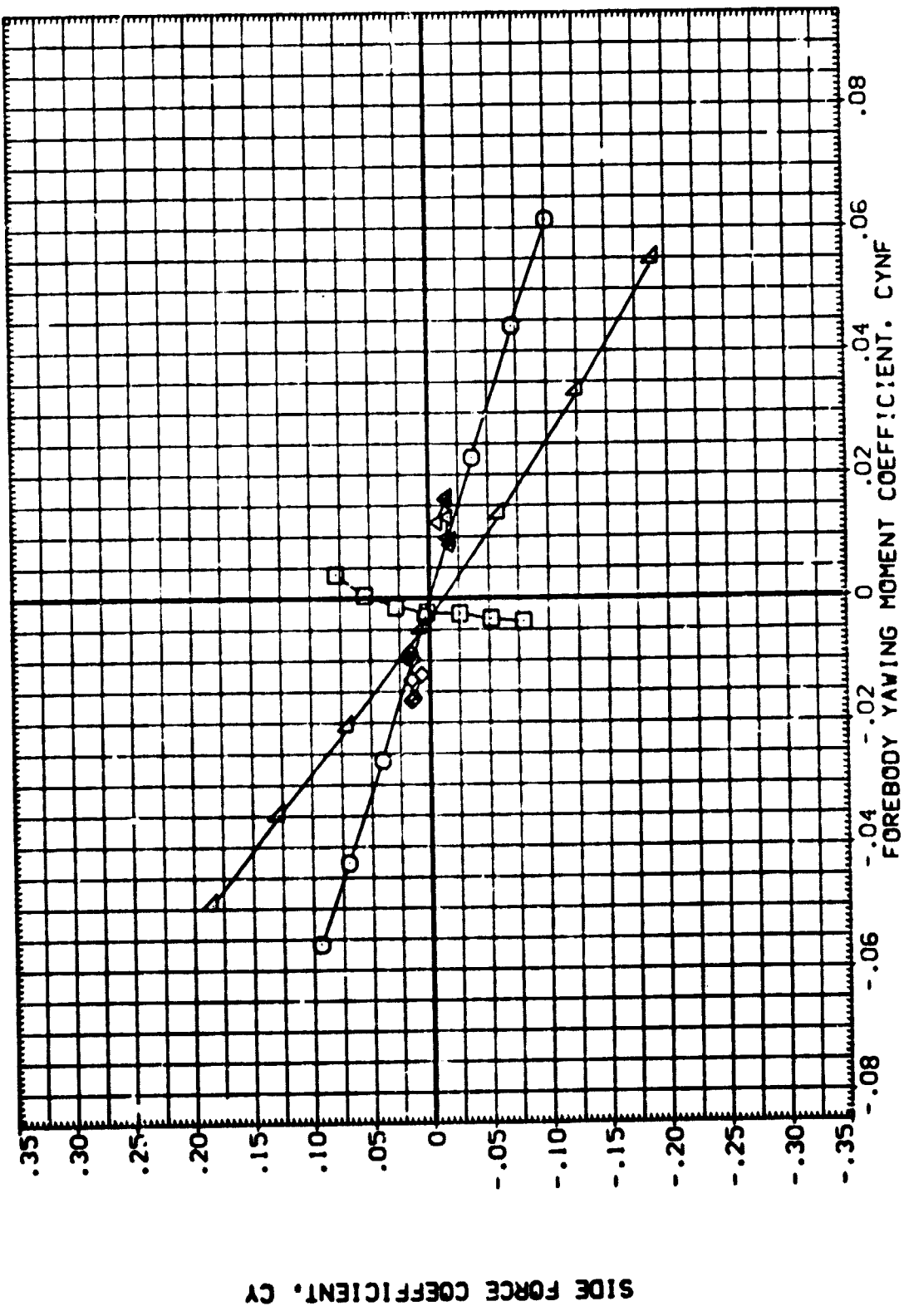


FIG. 17 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4
(C)ALPHA= -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(LETO35)	AME597-013(IAB1) LVAP ORBITER-ALL ML SEALED	8.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LETT35)	AME597-013(IAB1) LVAP TANK - ALL ML SEALED	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LETL35)	AME597-013(IAB1) LVAP L-SRB - ALL ML SEALED	8.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LETR35)	AME597-013(IAB1) LVAP R-LRB - ALL ML SEALED	8.000	-4.000	1.550	.000	XMRP 976.0000 IN.
(LETT35)	AME597-013(IAB1) LVAP INT VEN ALL ML SEALED	8.000	-4.000	1.550	.000	YMRP 400.0000 IN.
(LETT35)						SCALE .0300

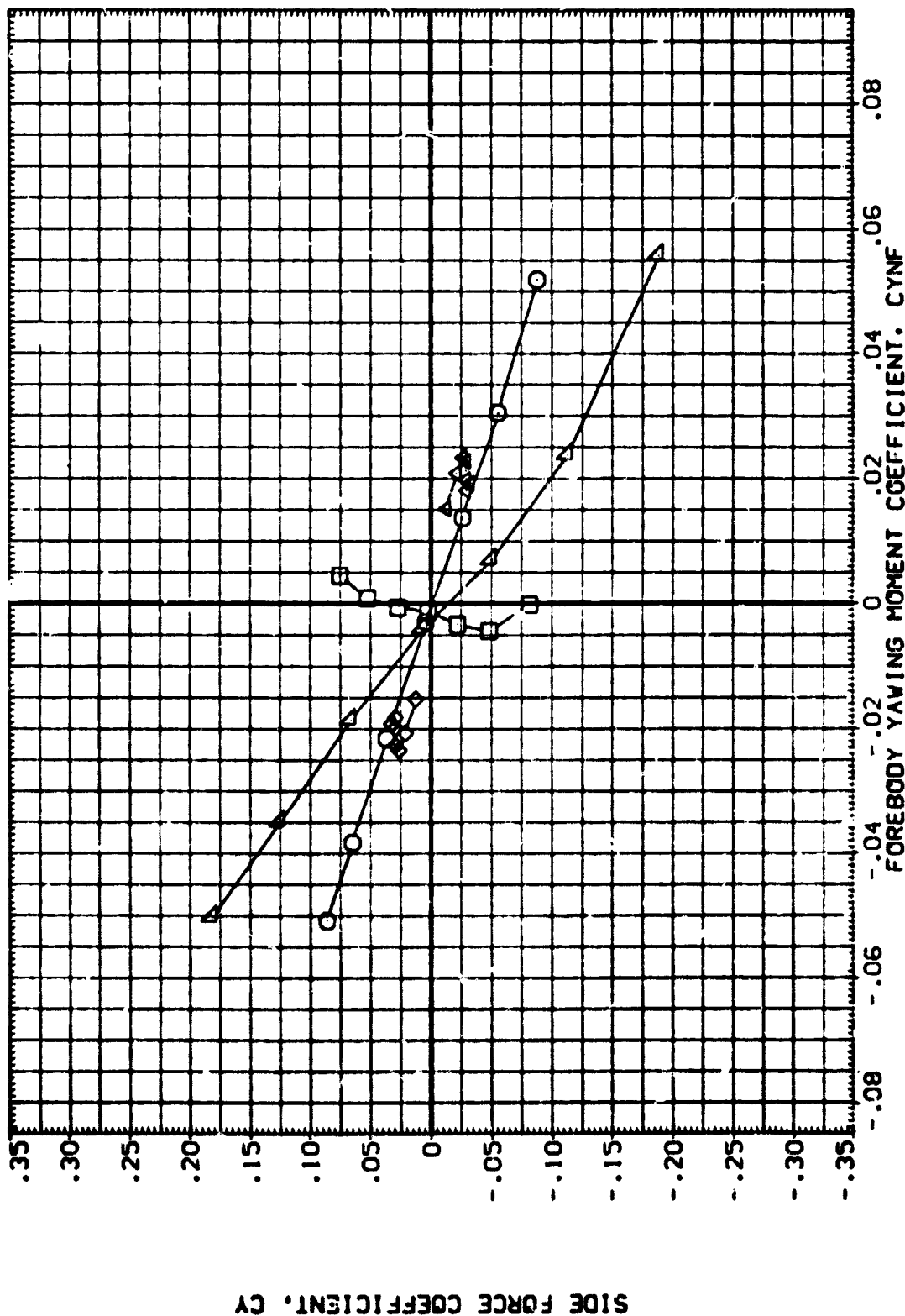


FIG. 17 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4

(D) ALPHA = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(LE1035)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	1.550	.000	SREF 2690.0000 SO.FT.
(LE1135)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LE1235)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LE1335)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	1.550	.000	YMRP 976.0000 IN.
(LE1435)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	1.550	.000	ZMRP 400.0000 IN.
						SCALE .0300

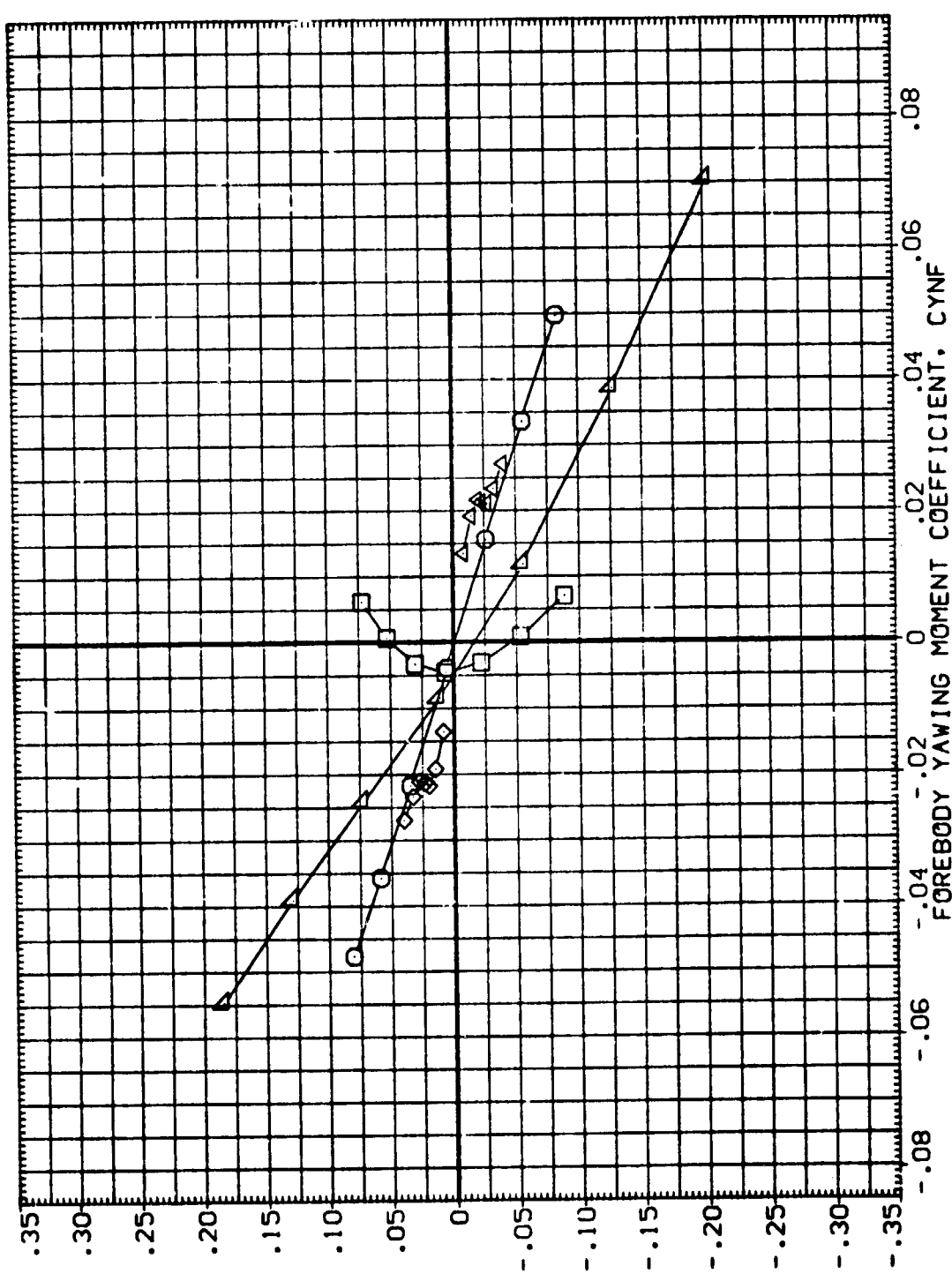


FIG. 17 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4
(E)ALPHA= 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LE1035)	AMES97-019(IAB1) LVAP ORBITTER-ALL HL SEALED	8.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LE1135)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LE1235)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LE1335)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	8.000	-4.000	1.550	.000	XMRP 976.0000 IN.
(LE1435)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	1.550	.000	YMRP 400.0000 IN.
(LE1535)						ZMRP 400.0000 IN.
						SCALE .0300

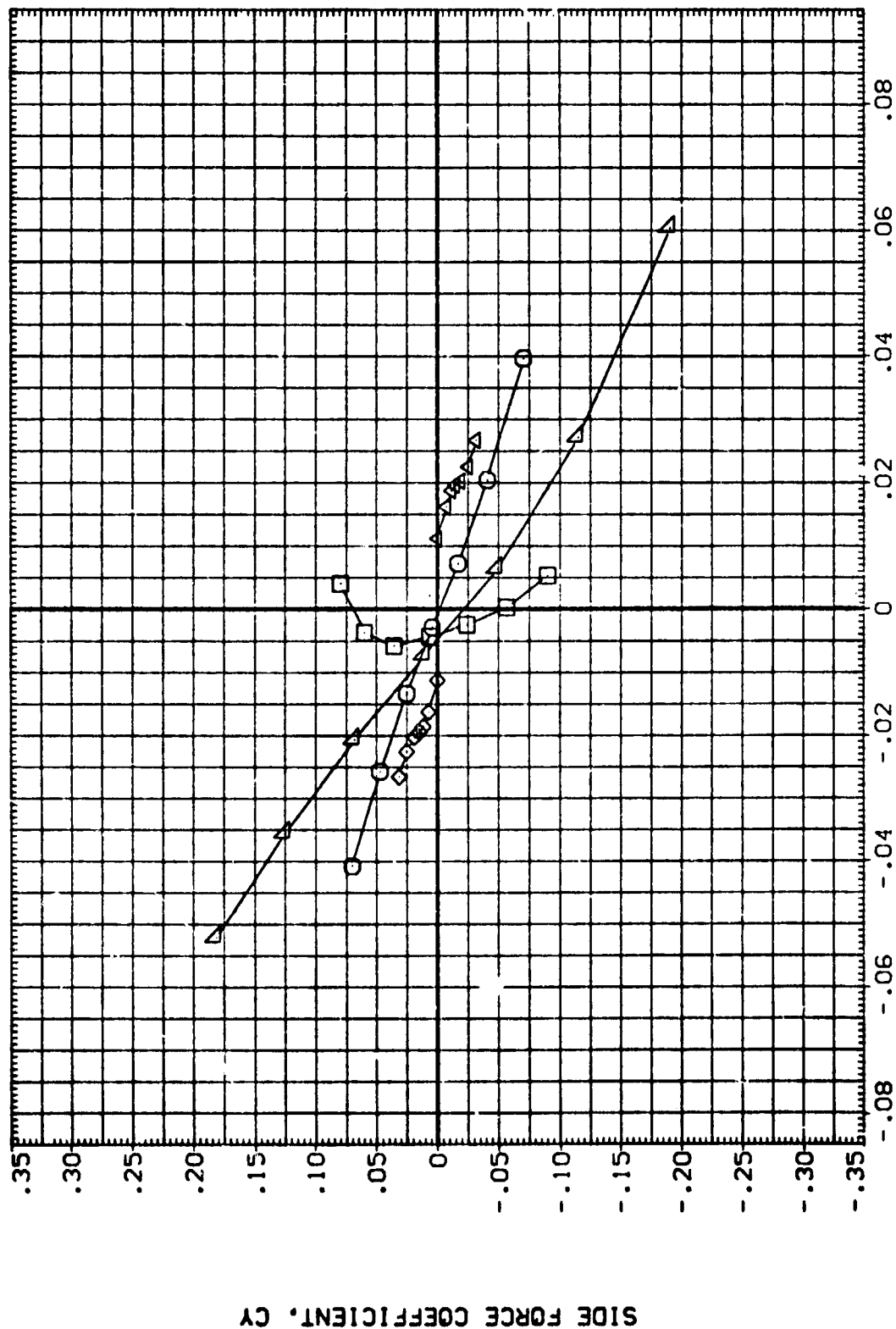


FIG. 17 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4

(F)ALPHA= 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPOBRK	REFERENCE INFORMATION
(LET035)	AMES97-019(1A81) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LET135)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LET135)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LET135)	AMES97-019(1A81) LVAP R-LRB ALL HL SEALED	8.000	-4.000	1.550	.000	YHRP 976.0000 IN.
(LET135)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	-4.000	1.550	.000	ZHRP 400.0000 IN.
						SCALE .0300

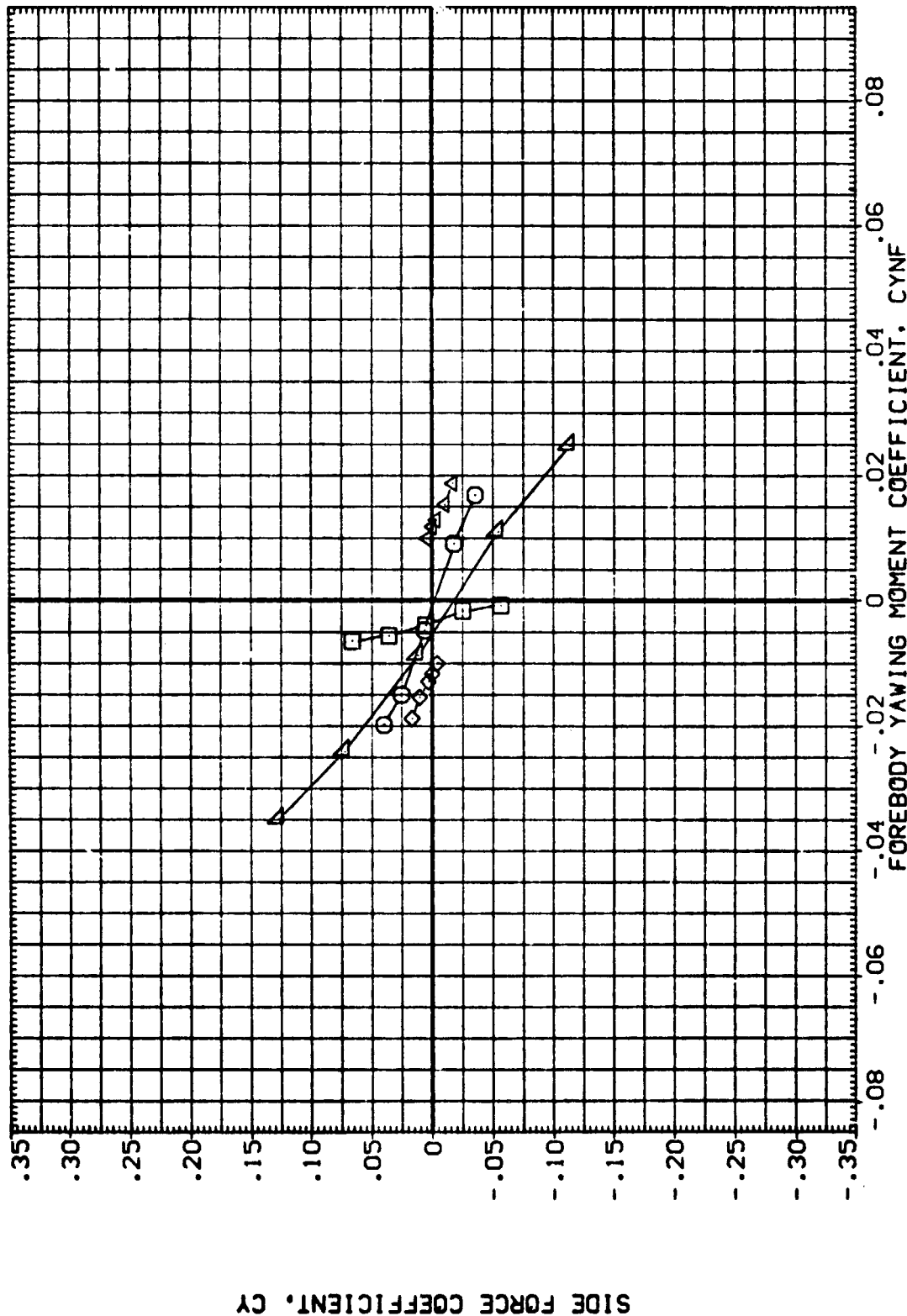


FIG. 17 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4
(G)ALPHA= 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDBRK	REFERENCE INFORMATION
(LE1035)	AME597-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LE1135)	AME597-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LE1235)	AME597-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LE1335)	AME597-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	1.550	.000	X4RP 976.0000 IN.
(LE1435)	AME597-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	1.550	.000	Y4RP 400.0000 IN.
						Z4RP 400.0000 IN.
						SCALE .0300

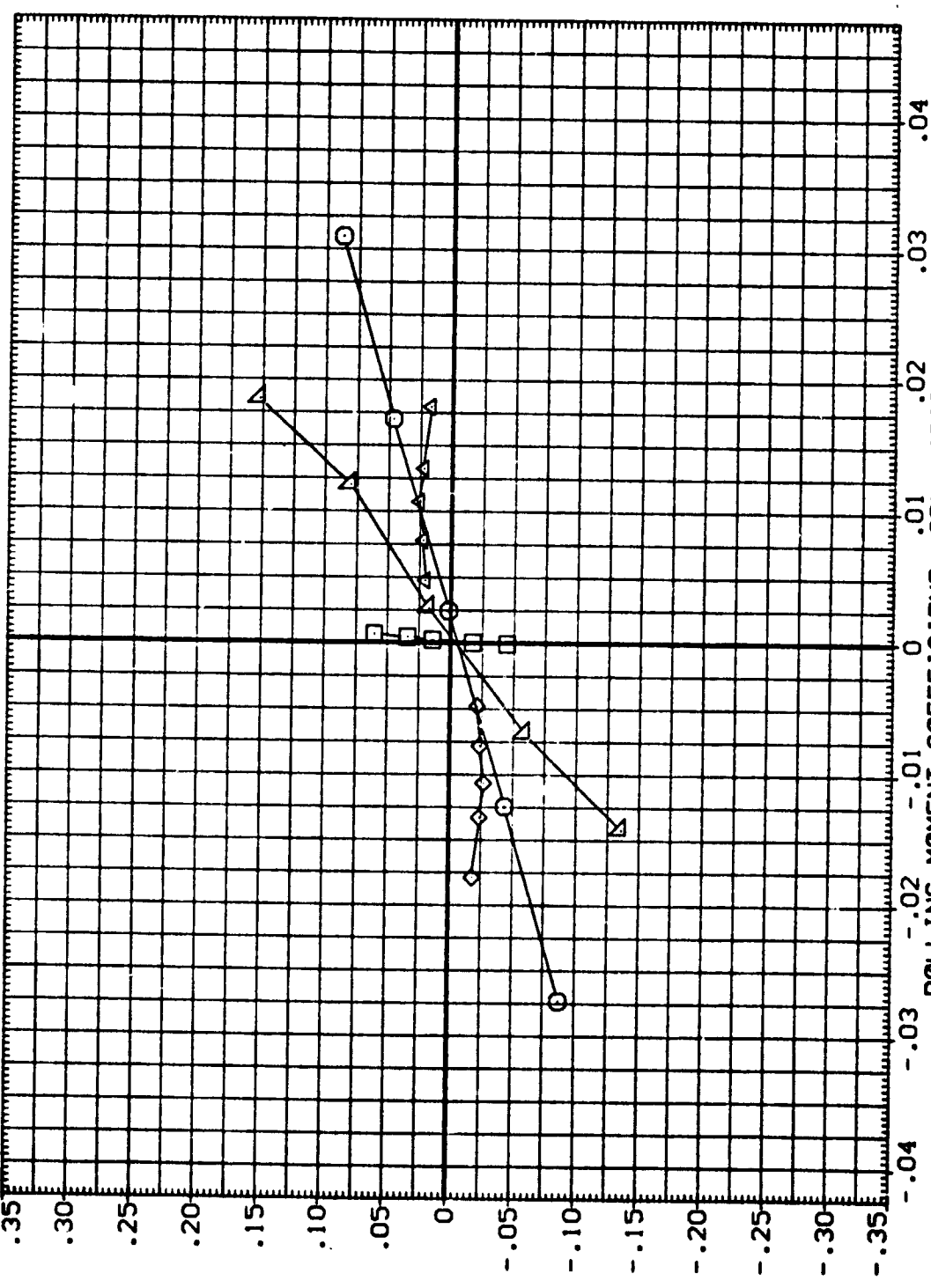


FIG. 17 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4
(A) ALPHA=-6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LE1035)	APES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LE1135)	APES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LE1235)	APES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LE1335)	APES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	1.550	.000	YMRP 976.0000 IN.
(LE1435)	APES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	1.550	.000	ZMRP 400.0000 IN.
(LE1535)						SCALE .0300

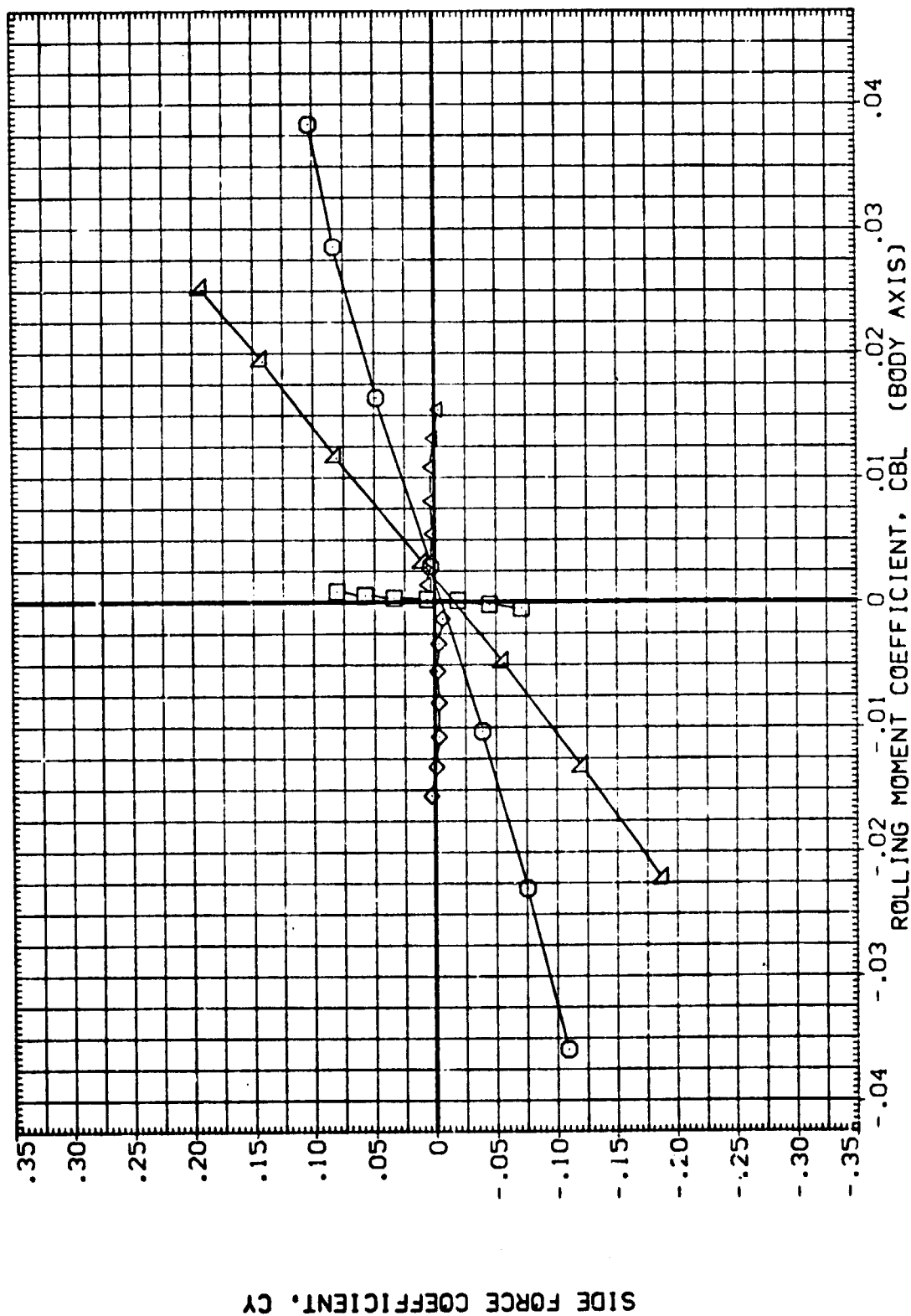
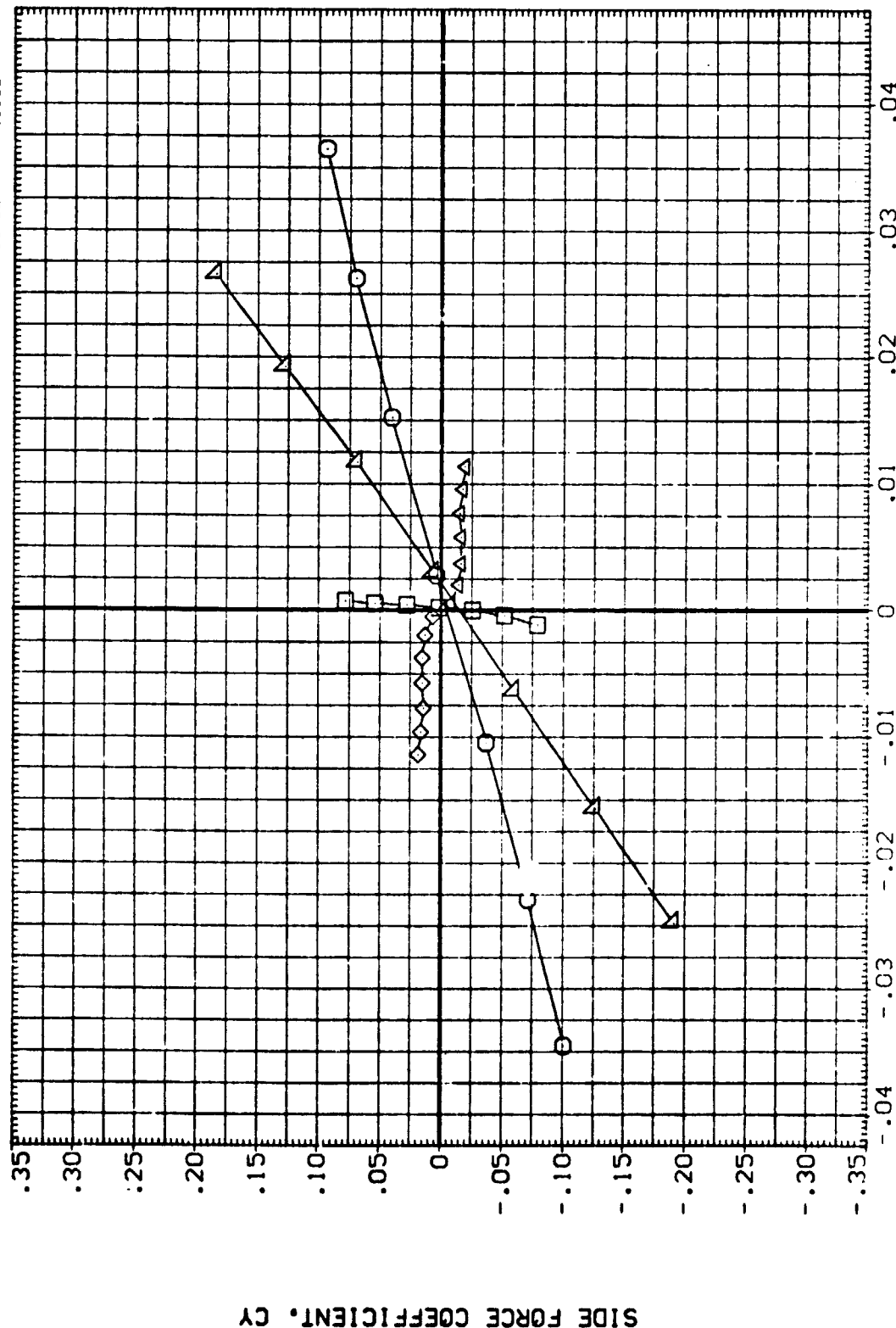


FIG. 17 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4
(B) ALPHA = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SP0BRK	REFERENCE INFORMATION
(LET135)	AMES97-019(IAB1) LVAP ORBITTER-ALL ML SEALED	8.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LET135)	AMES97-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LET135)	AMES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	8.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LET135)	AMES97-019(IAB1) LVAP R-LRB ALL ML SEALED	8.000	-4.000	1.550	.000	XMRP 976.0000 IN.
(LET135)	AMES97-019(IAB1) LVAP INT VEH ALL ML SEALED	8.000	-4.000	1.550	.000	YMRP .0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300



ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

FIG. 17 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4

(C)ALPHA= -2.00

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPUBRK	REFERENCE INFORMATION
(LET035)	AVES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LET135)	AVES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LET135)	AVES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LET135)	AVES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	1.550	.000	XMRP 976.0000 IN. YI
(LET135)	AVES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	1.550	.000	ZMRP 400.0000 IN. ZI
						SCALE .0300

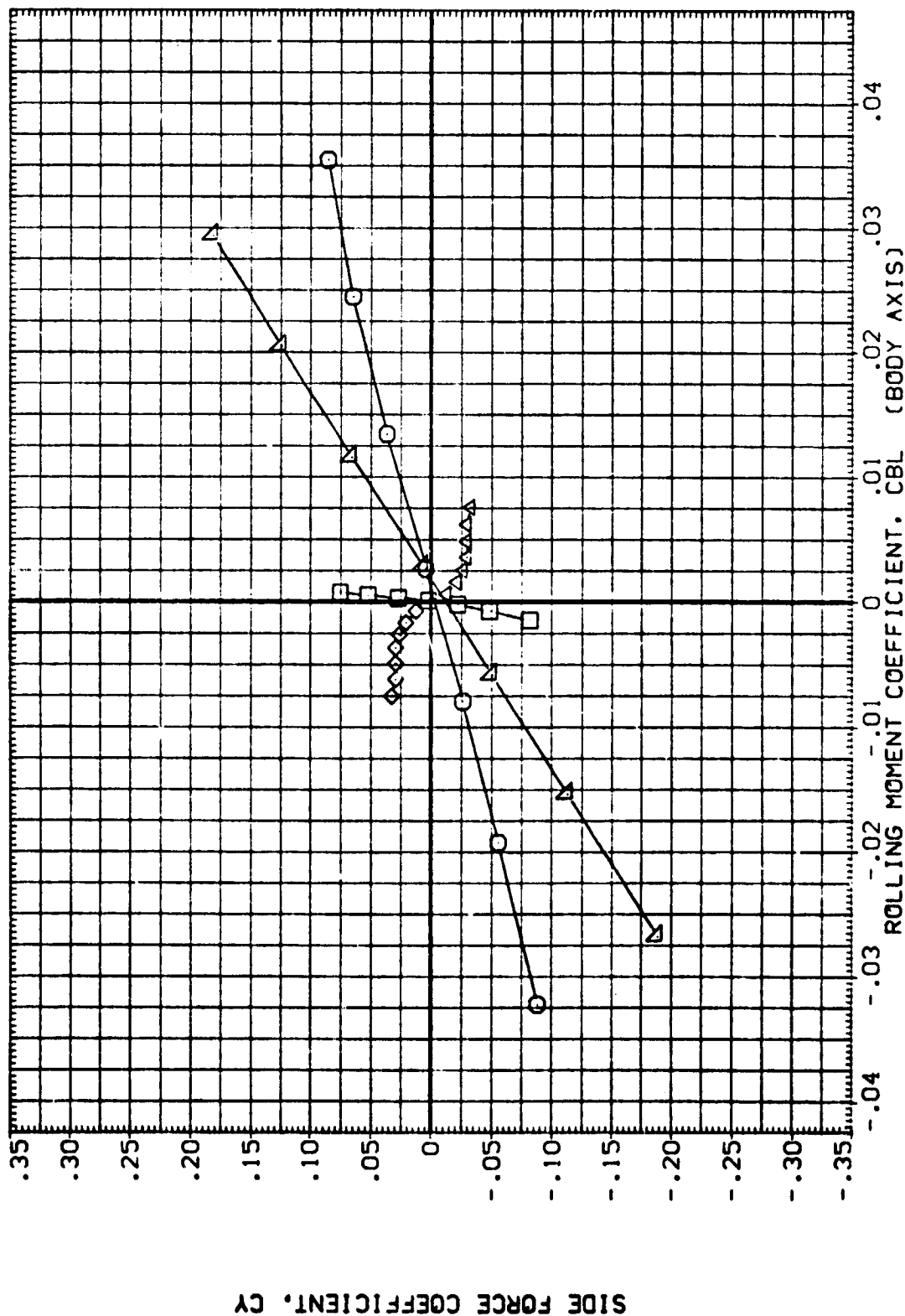


FIG. 17 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4

(D)ALPHA= .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LET035)	AMES97-0191(A81) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LET135)	AMES97-0191(A81) LVAP TANK - ALL HL SEALED	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LET135)	AMES97-0191(A81) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LET135)	AMES97-0191(A81) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	1.550	.000	XMRP 976.0000 IN.
(LET135)	AMES97-0191(A81) LVAP INT VEH ALL HL SEALED	8.000	-4.000	1.550	.000	ZMRP 400.0000 IN.
						SCALE .0300

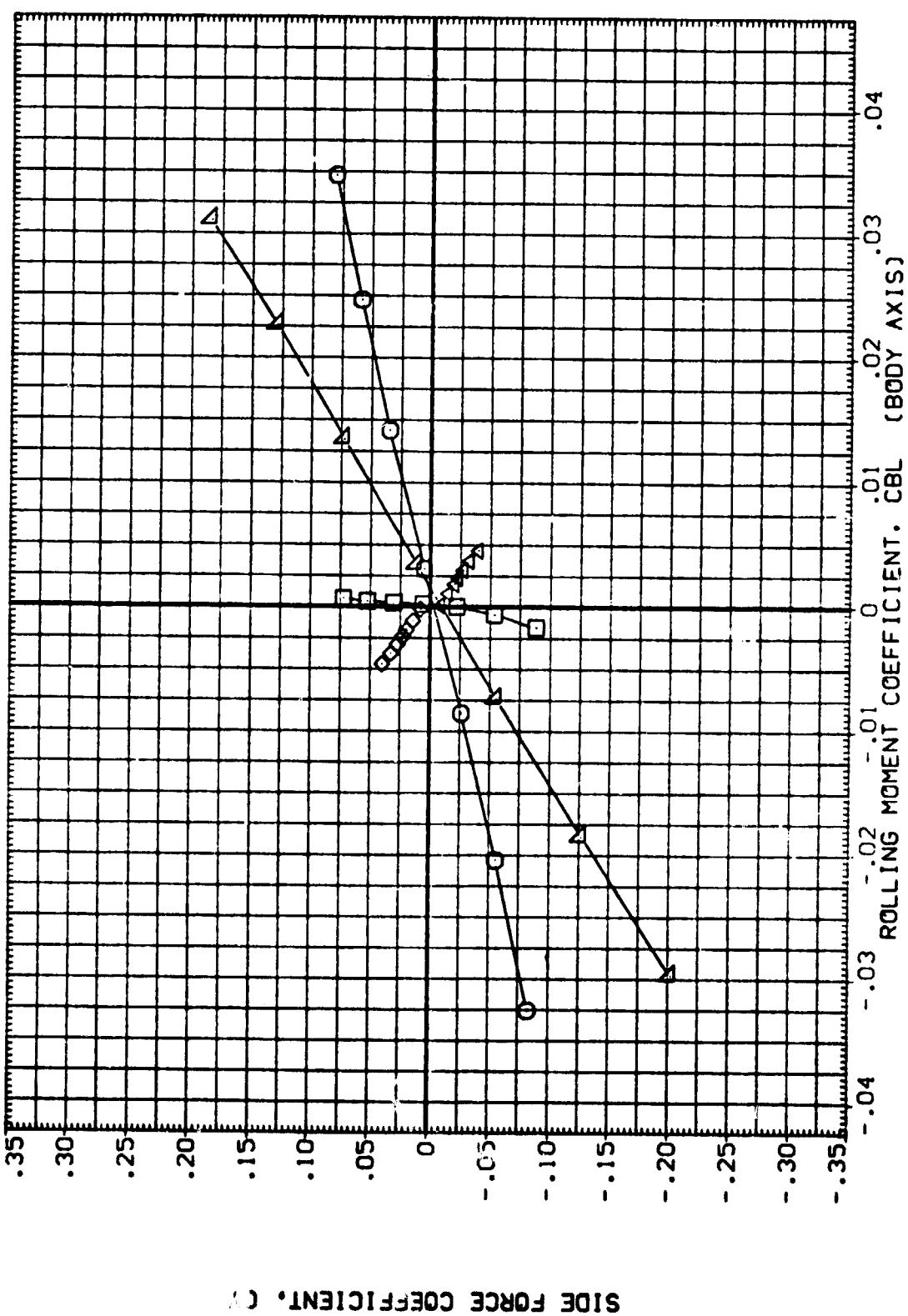


FIG. 17 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4
(E)ALPHA= 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDBRK	REFERENCE INFORMATION
(LE1075)	AMES97-0191(A81) LVAP ORBITER-ALL ML SEALED	8.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LE1175)	AMES97-0191(A81) LVAP TANK - ALL ML SEALED	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LE1275)	AMES97-0191(A81) LVAP L-SRB - ALL ML SEALED	8.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LE1375)	AMES97-0191(A81) LVAP R-LRB - ALL ML SEALED	8.000	-4.000	1.550	.000	XMRP 976.0000 IN.
(LE1475)	AMES97-0191(A81) LVAP INT VEH - ALL ML SEALED	8.000	-4.000	1.550	.000	YMRP 400.0000 IN.
(LE1575)						ZMRP 400.0000 IN.
						SCALE .0300

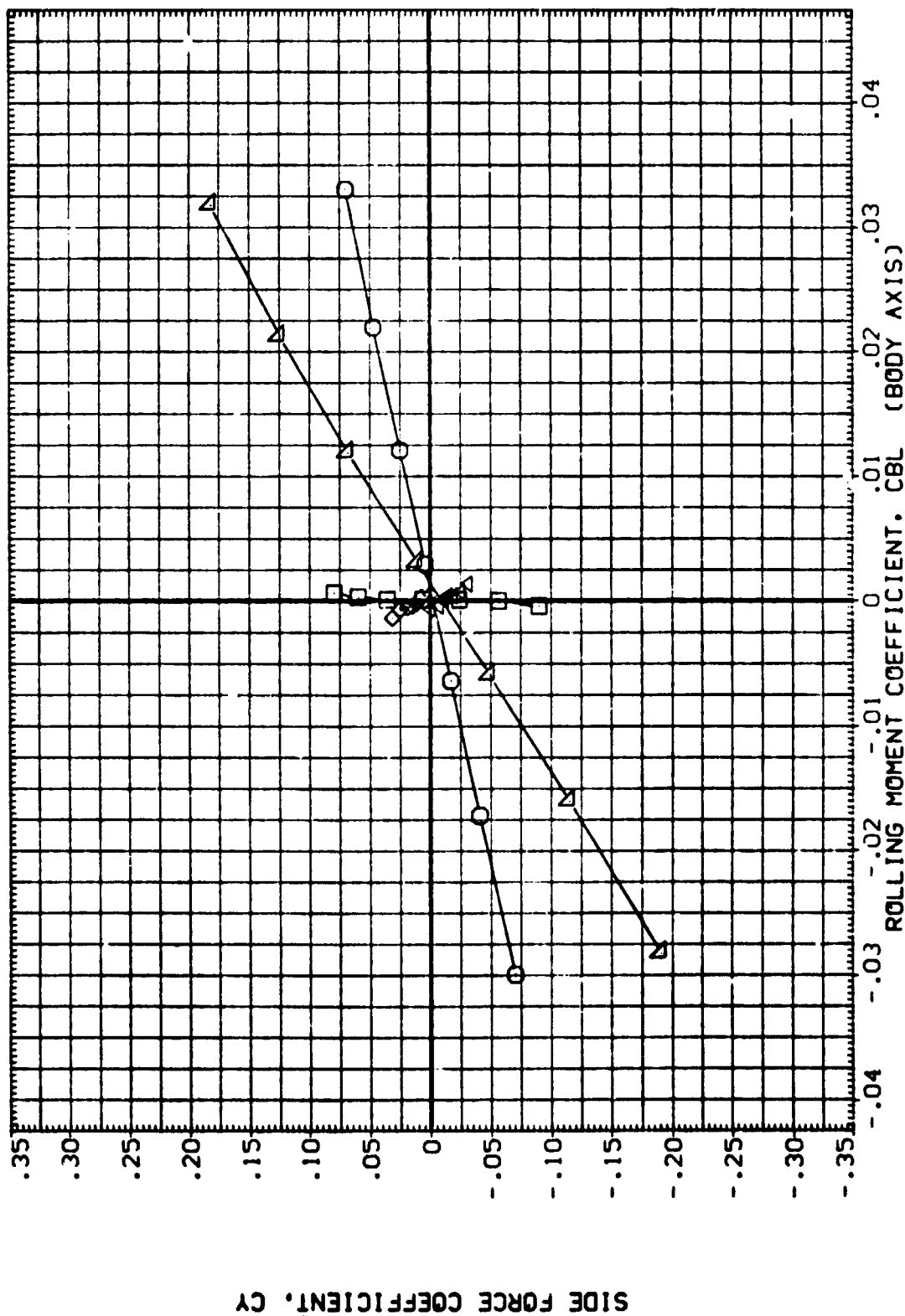


FIG. 17 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4
(F)ALPHA= 4.00

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ORIGINAL PAGE IS POOR

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-DB	MACH	SPOBRK	REFERENCE INFORMATION
(LE10735)	AMES97-019(IAB1) LVAP ORBITER-ALL ML SEALED	8.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LE11735)	AMES97-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LE17L35)	AMES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	8.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LE1R35)	AMES97-019(IAB1) LVAP R-LRB - ALL ML SEALED	8.000	-4.000	1.550	.000	XMRP 976.0000 IN. XT
(LE1135)	AMES97-019(IAB1) LVAP INT VEH ALL ML SEALED	8.000	-4.000	1.550	.000	YMRP 400.0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

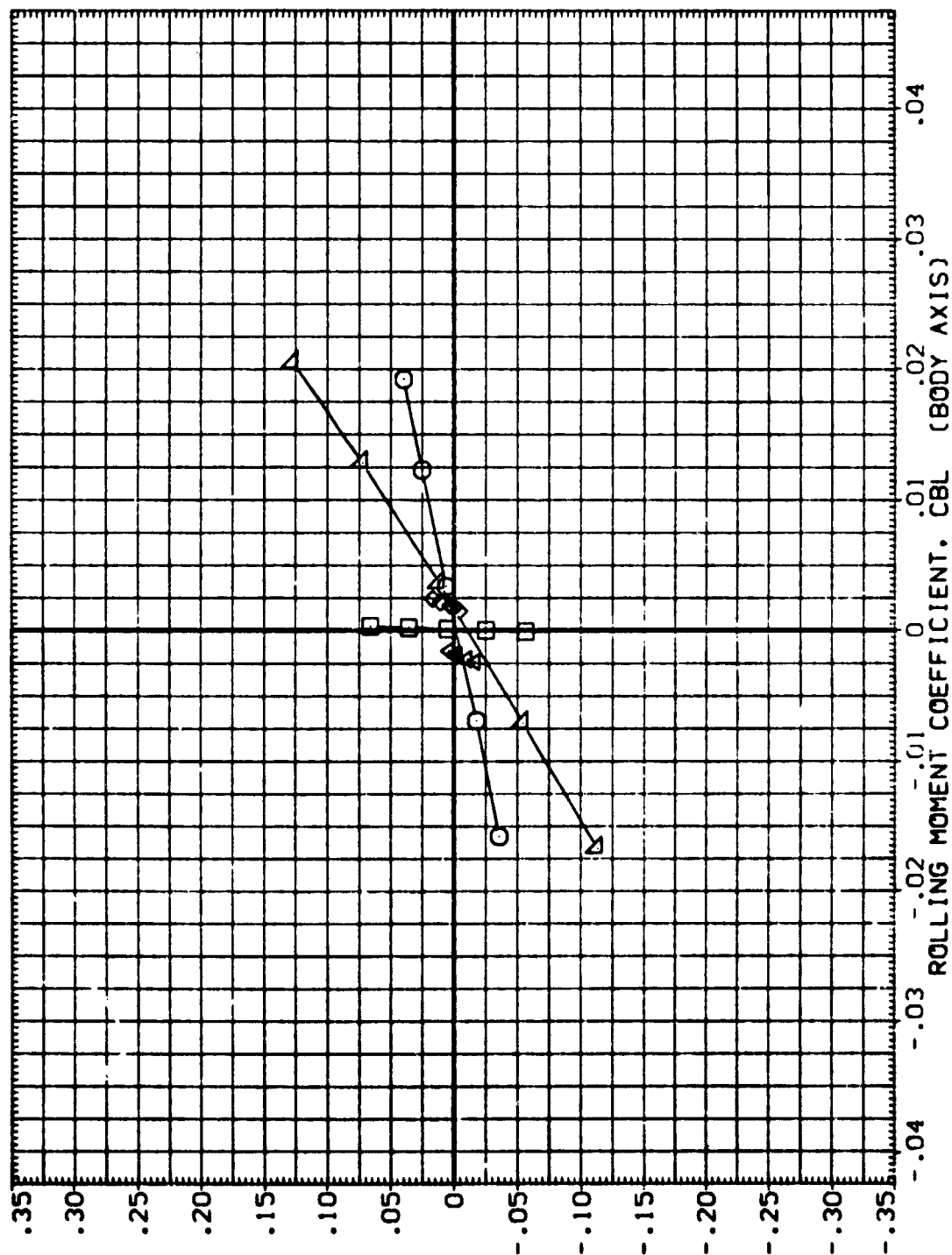


FIG. 17 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/-4

(G)ALPHA= 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRK	REFERENCE INFORMATION			
(LETO29)	AVES97-019(IAB1) LVAP ORBITER-ALL ML SEALED	.000	.000	1.550	.000	SREF	2690.0000	SQ.FT.	
(LETT29)	AVES97-019(IAB1) LVAP TANK - ALL ML SEALED	.000	.000	1.550	.000	LREF	1297.0000	IN.	
(LETL29)	AVES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	.000	.000	1.550	.000	BREF	1297.0000	IN.	XT
(LETR29)	AVES97-019(IAB1) LVAP R-LRB - ALL ML SEALED	.000	.000	1.550	.000	XHRP	976.0000	IN.	YT
(LETT29)	AVES97-019(IAB1) LVAP INT VEH ALL ML SEALED	.000	.000	1.550	.000	ZHRP	400.0000	IN.	ZT
						SCALE			.0300

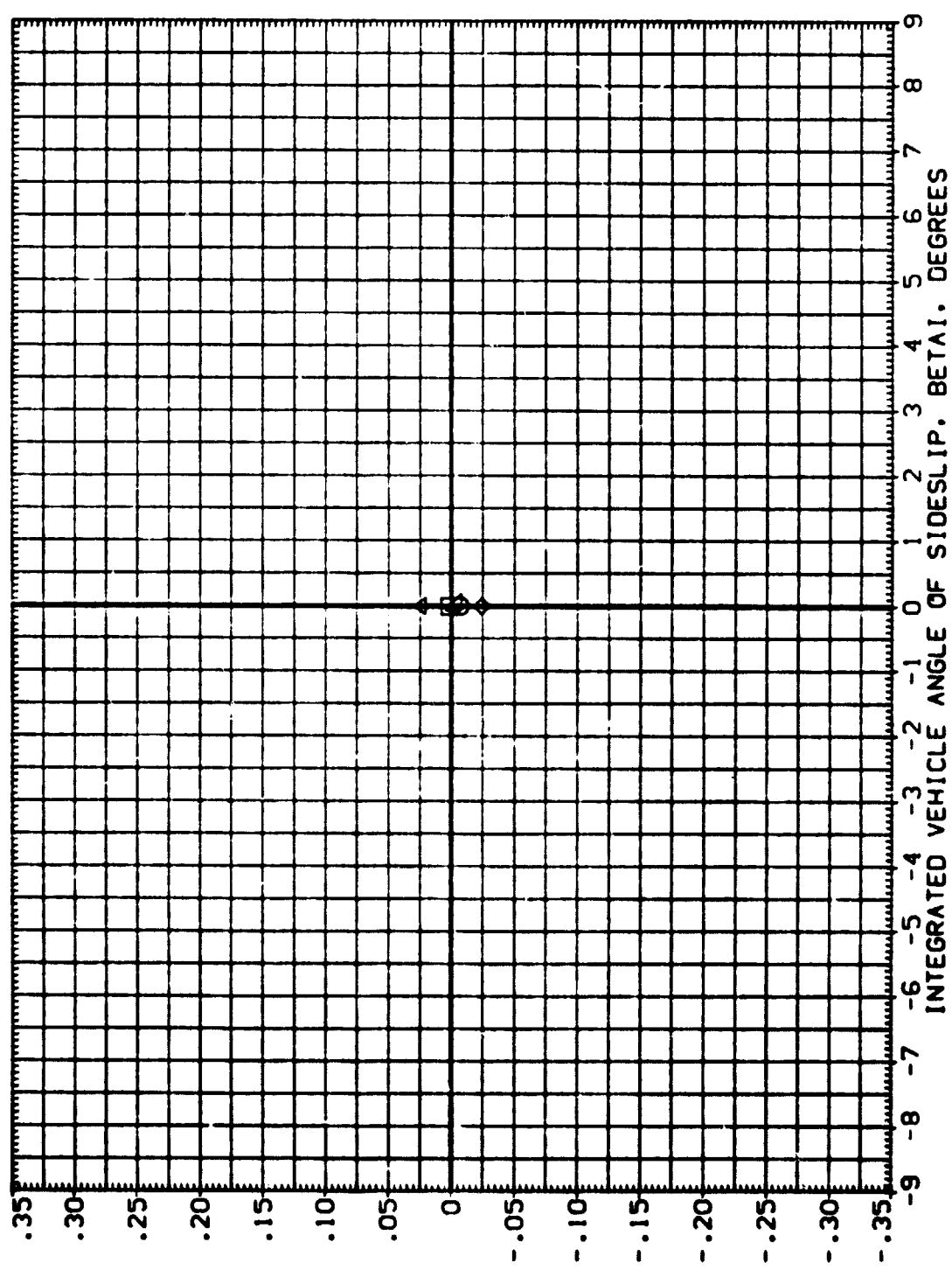


FIG. 18 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=0/0
 (A) ALPHA= -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRMK	REFERENCE INFORMATION
(LET029)	AWES97-019(IAB1) LVAP	.000	.000	1.550	.000	SREF 2680.0000 50.FT.
(LET128)	AWES97-019(IAB1) LVAP	.000	.000	1.550	.000	LREF 1297.0000 IN.
(LET128)	AWES97-019(IAB1) LVAP	.000	.000	1.550	.000	BREF 1297.0000 IN.
(LET128)	AWES97-019(IAB1) LVAP	.000	.000	1.550	.000	XMRP 976.0000 IN. XT
(LET128)	AWES97-019(IAB1) LVAP	.000	.000	1.550	.000	VT 400.0000 IN. VT
(LET128)	AWES97-019(IAB1) LVAP	.000	.000	1.550	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

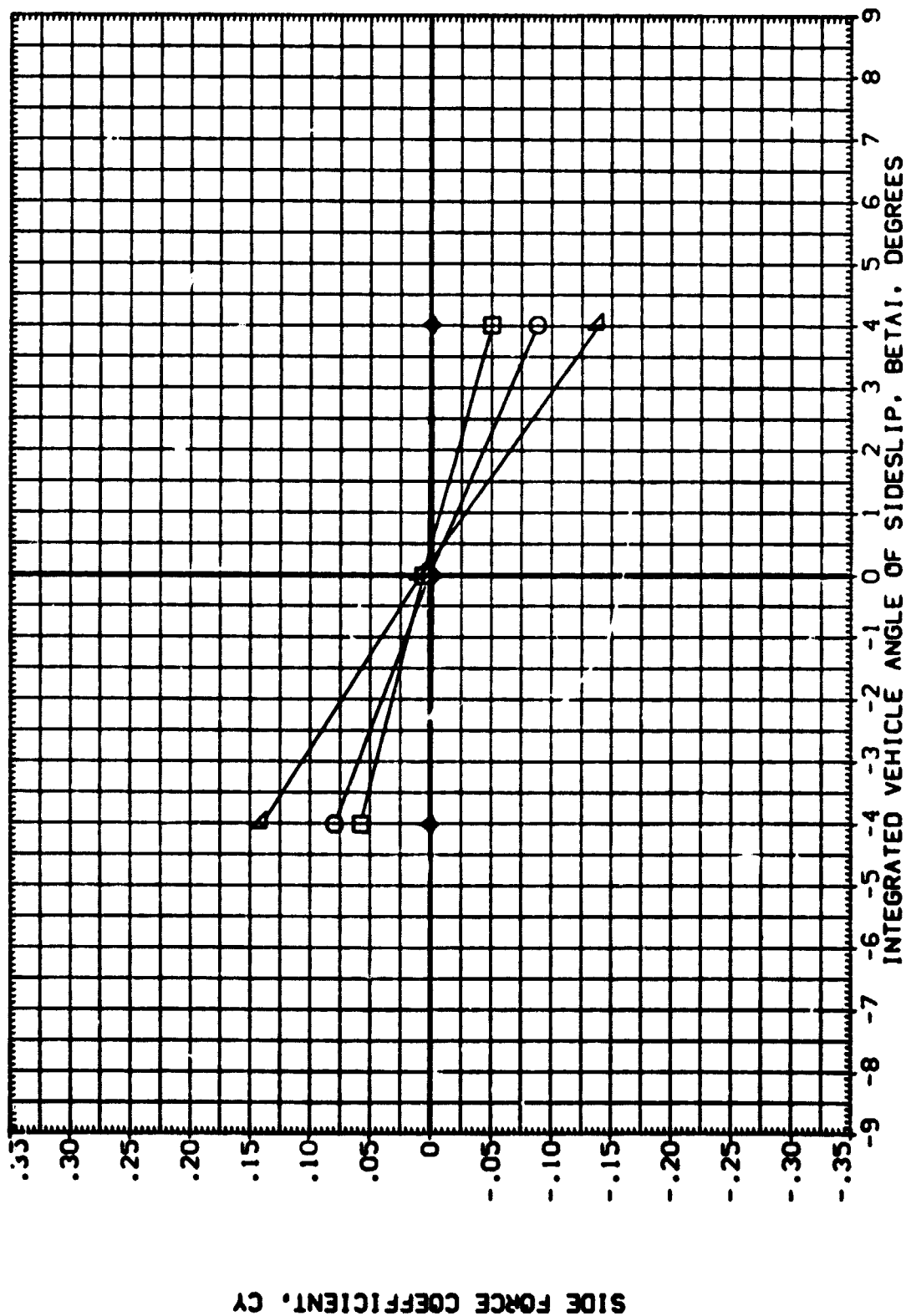


FIG. 18 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=1.55$ DEV=0/0

(B) $\alpha_{11} = -4.00$

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(LE1008)	AMES97-019(IAB1) LVAP DMB11TER-ALL M SEALED	.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LE1138)	AMES97-019(IAB1) LVAP TANK - ALL M SEALED	.000	.000	1.550	.000	LREF 1297.0000 IN.
(LE1138)	AMES97-019(IAB1) LVAP L-SRB - ALL M SEALED	.000	.000	1.550	.000	BREF 1297.0000 IN.
(LE1138)	AMES97-019(IAB1) LVAP R-LRB - ALL M SEALED	.000	.000	1.550	.000	XMRP 976.0000 IN. XT
(LE1138)	AMES97-019(IAB1) LVAP INT VEH ALL M SEALED	.000	.000	1.550	.000	YMRP 400.0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

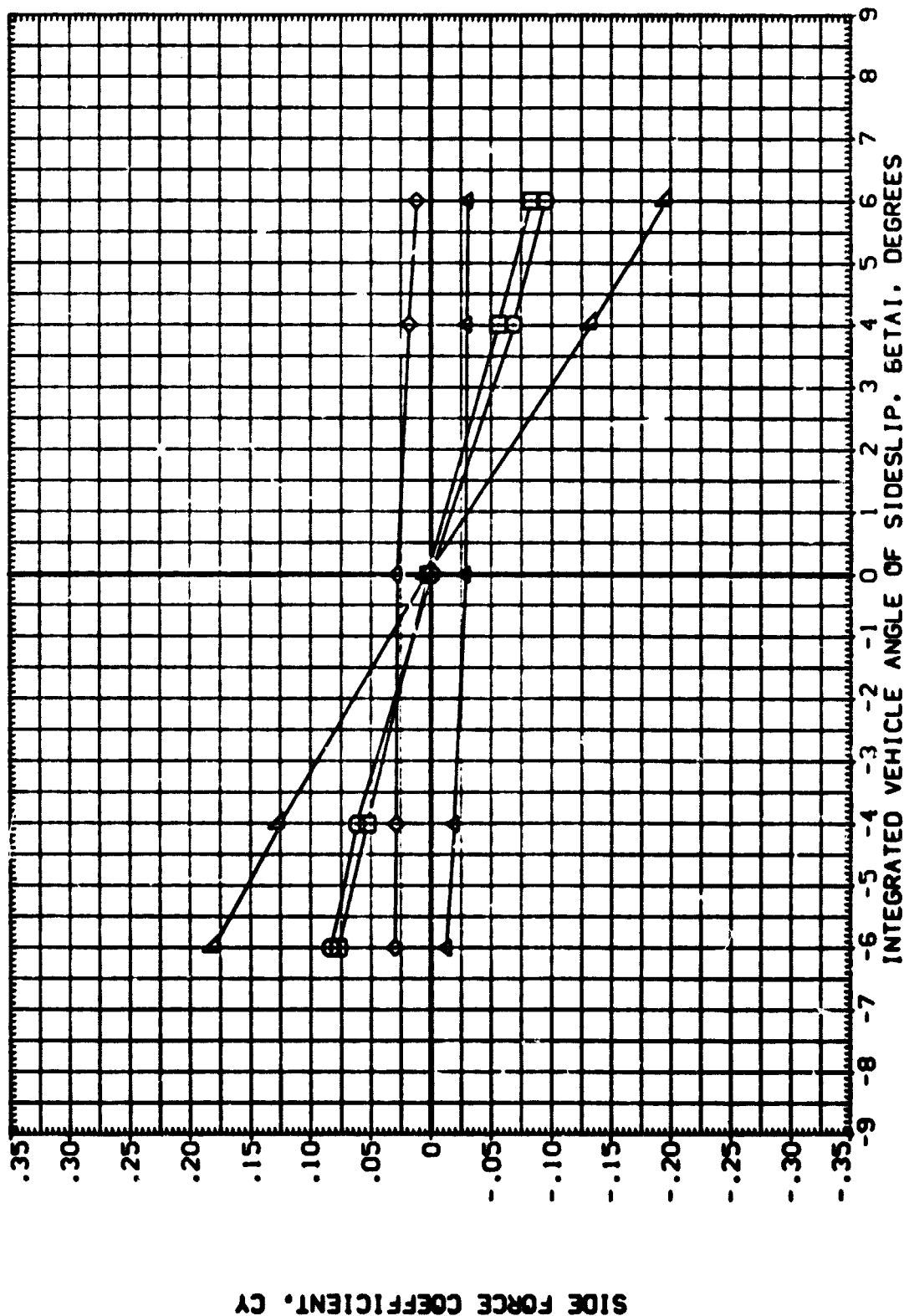


FIG. 18 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=0/0
(C)ALP1A1= .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOGRK	REFERENCE INFORMATION
(LE1029)	ARE597-0191(A81) LVAP ORBITER-ALL ML SEALED	.000	.000	1.550	.000	SREF 2690.0000 SQ. FT.
(LE1129)	ARE597-0191(A81) LVAP TANK - ALL ML SEALED	.000	.000	1.550	.000	LREF 1297.0000 IN.
(LE1229)	ARE597-0191(A81) LVAP L-SAB - ALL ML SEALED	.000	.000	1.550	.000	BREF 1297.0000 IN.
(LE1329)	ARE597-0191(A81) LVAP R-LRB - ALL ML SEALED	.000	.000	1.550	.000	XMRP 976.0000 IN. XT
(LE1429)	ARE597-0191(A81) LVAP INT VEH ALL ML SEALED	.000	.000	1.550	.000	YMRP 400.0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

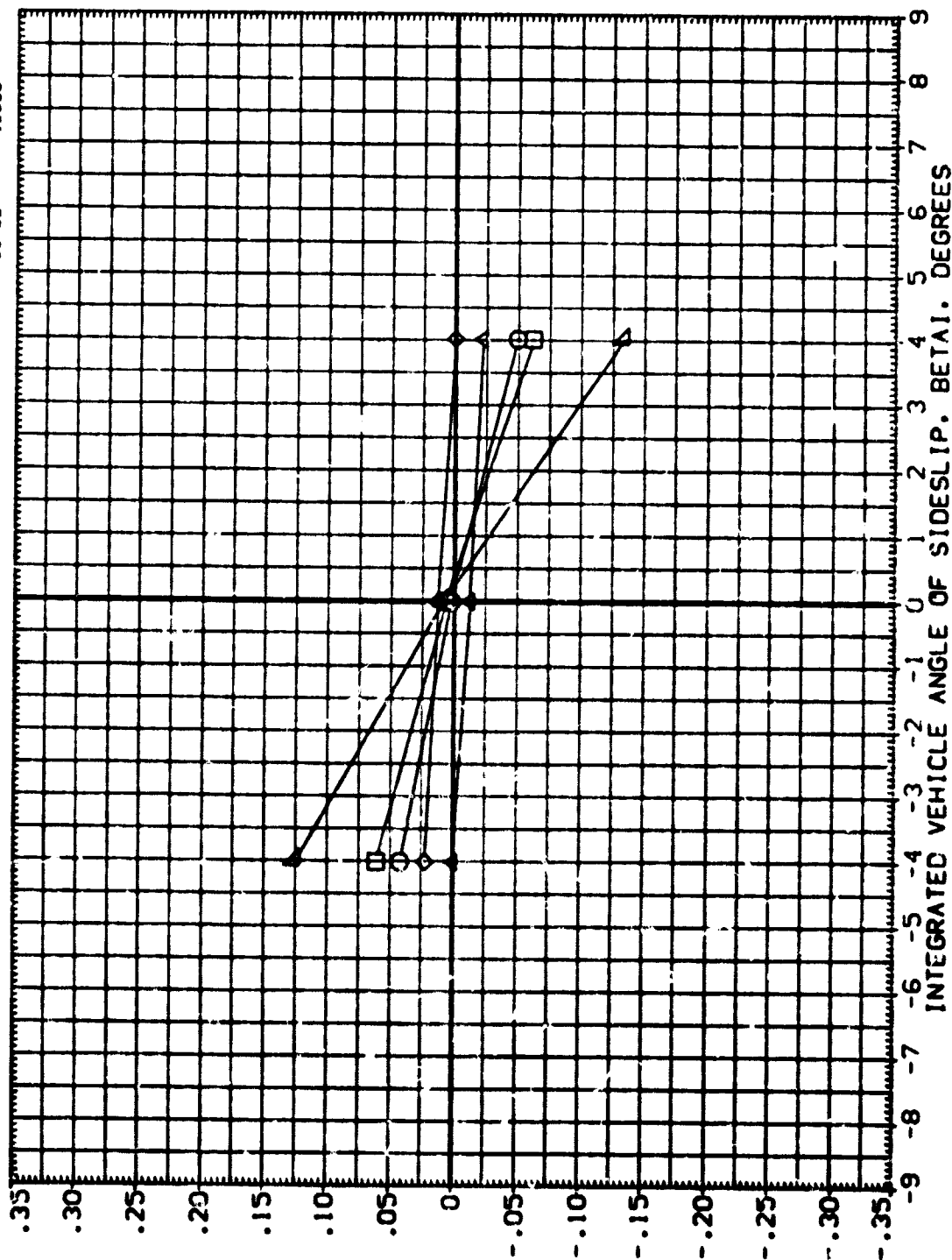


FIG. 18 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=1.55$ $DEV=0/0$

'DIALPHAI= 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRBK	REFERENCE INFORMATION
(LE1079)	AMES97-019(IAB1) LVAP ORBITER-ALL ML SEALED	.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LE1139)	AMES97-019(IAB1) LVAP TANK - ALL ML SEALED	.000	.000	1.550	.000	LREF 1297.0000 IN.
(LE1139)	AMES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	.000	.000	1.550	.000	BREF 1297.0000 IN.
(LE1139)	AMES97-019(IAB1) LVAP R-LRB - ALL ML SEALED	.000	.000	1.550	.000	YMRP 976.0000 IN. XT
(LE1139)	AMES97-019(IAB1) LVAP INT VEH ALL ML SEALED	.000	.000	1.550	.000	ZMRP 400.0000 IN. YI
						SCALE .0300

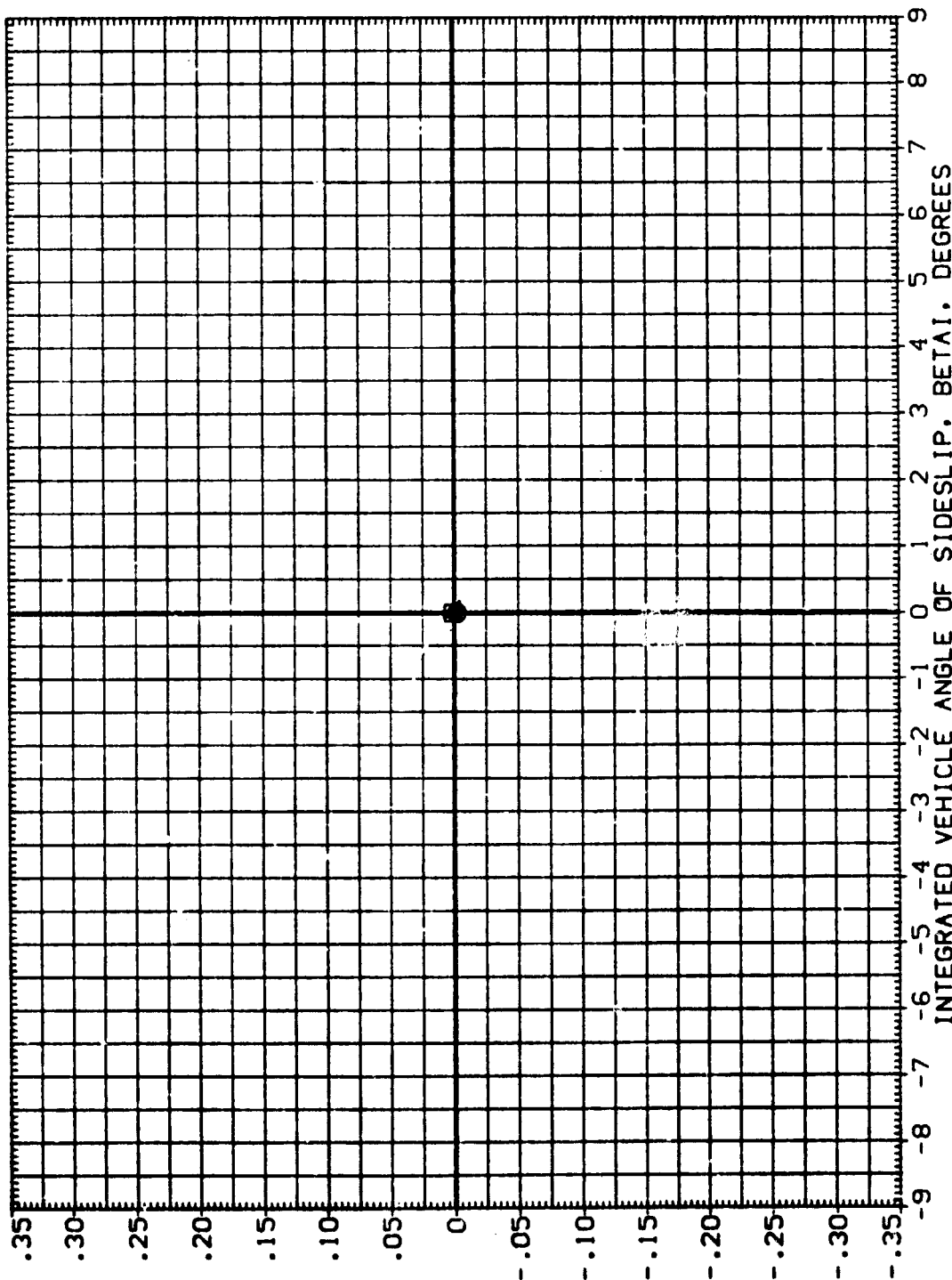
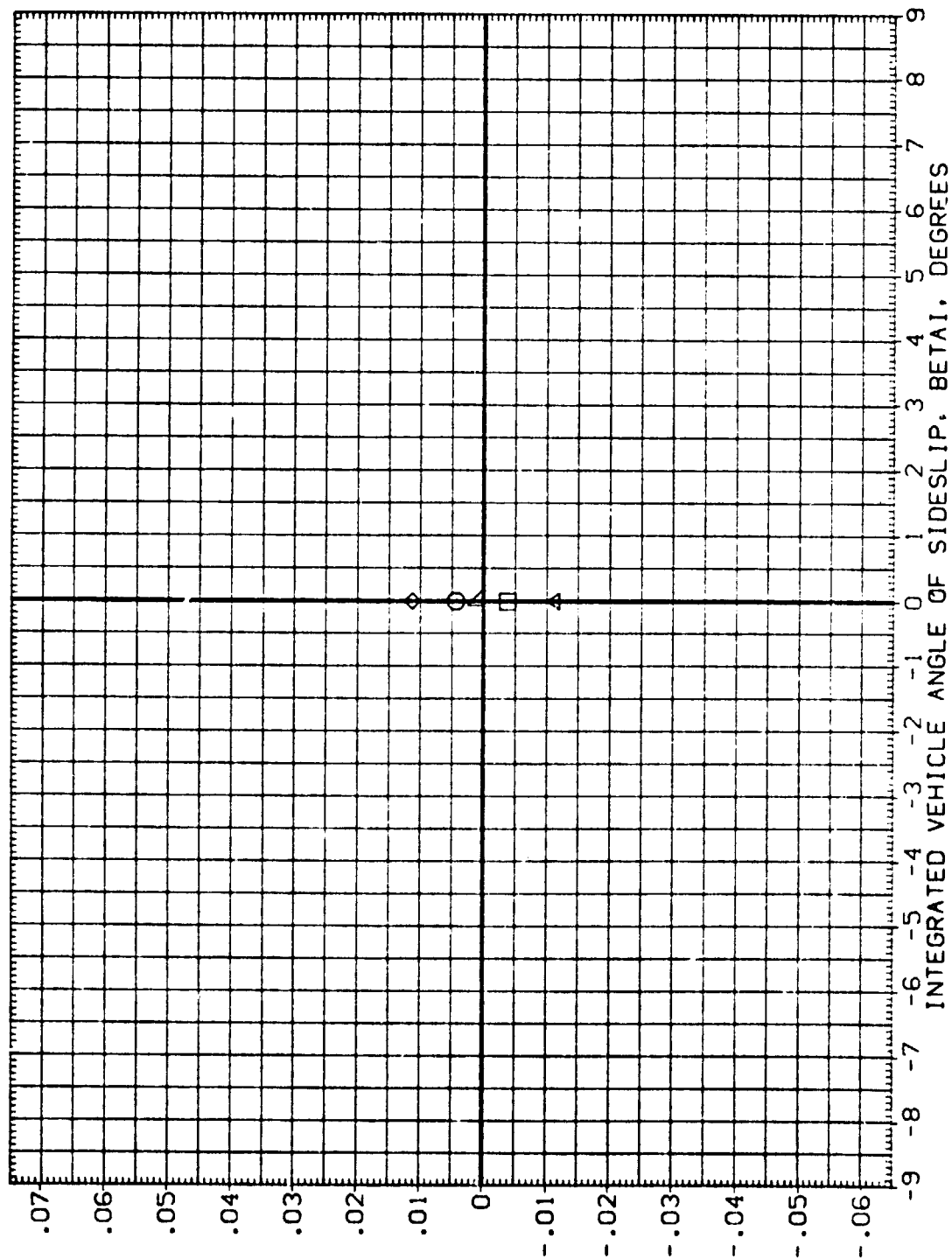


FIG. 18 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=1.55$ $DEV=0/0$
 (E)ALPHA1= 6.00 PAGE 372

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-09	MACH	SPDBRK	REFERENCE INFORMATION
(LE103)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LE1139)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	1.550	.000	LREF 1297.0000 IN.
(LE1139)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	1.550	.000	BREF 976.0000 IN.
(LE1139)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	.000	.000	1.550	.000	XMRP .0000 IN. XT
(LE1139)	AMES97-019(IAB1) LVAF INT VEH ALL HL SEALED	.000	.000	1.550	.000	ZMRP 400.0000 IN. YT
						SCALE .0300



FOREBODY YAWING MOMENT COEFFICIENT, CYNF

FIG. 18 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=0/0
(A) ALPHA = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(LE1039)	AMES97-019C(1A81) LVAP ORBITER-ALL HL SEALED	.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LE1139)	AMES97-019C(1A81) LVAP TANK - ALL HL SEALED	.000	.000	1.550	.000	LREF 1297.0000 IN.
(LE1239)	AMES97-019C(1A81) LVAP L-SRB - ALL HL SEALED	.000	.000	1.550	.000	BREF 1.97.0000 IN.
(LE1339)	AMES97-019C(1A81) LVAP R-LRB - ALL HL SEALED	.000	.000	1.550	.000	XMRP 976.0000 IN. XT
(LE1439)	AMES97-019C(1A81) LVAP INT VEH ALL HL SEALED	.000	.000	1.550	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

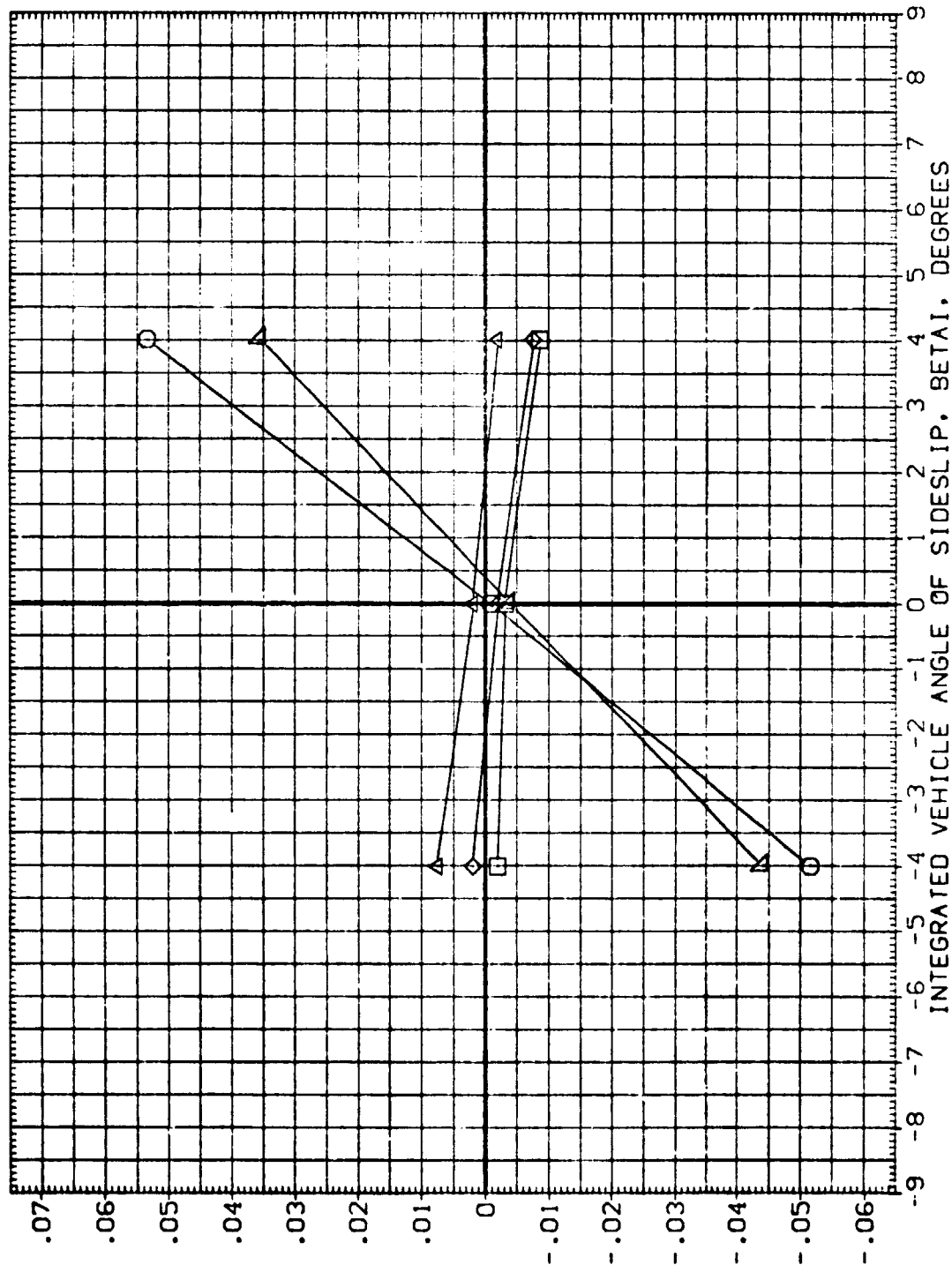


FIG. 18 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=0/0

(B)ALPHA= -4.00

DATA SET 5V160L CONFIGURATION DESCRIPTION

CONFIGURATION	DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRBK	REFERENCE INFORMATION
AMES97-019(IAB1)	LVAP	.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
AMES97-019(IAB1)	LVAP	.000	.000	1.550	.000	LREF 1297.0000 IN.
AMES97-019(IAB1)	LVAP	.000	.000	1.550	.000	BREF 1297.0000 IN.
AMES97-019(IAB1)	LVAP	.000	.000	1.550	.000	YMRP 976.0000 IN.
AMES97-019(IAB1)	LVAP	.000	.000	1.550	.000	ZMRP 400.0000 IN.
AMES97-019(IAB1)	LVAP	.000	.000	1.550	.000	SCALE .0300

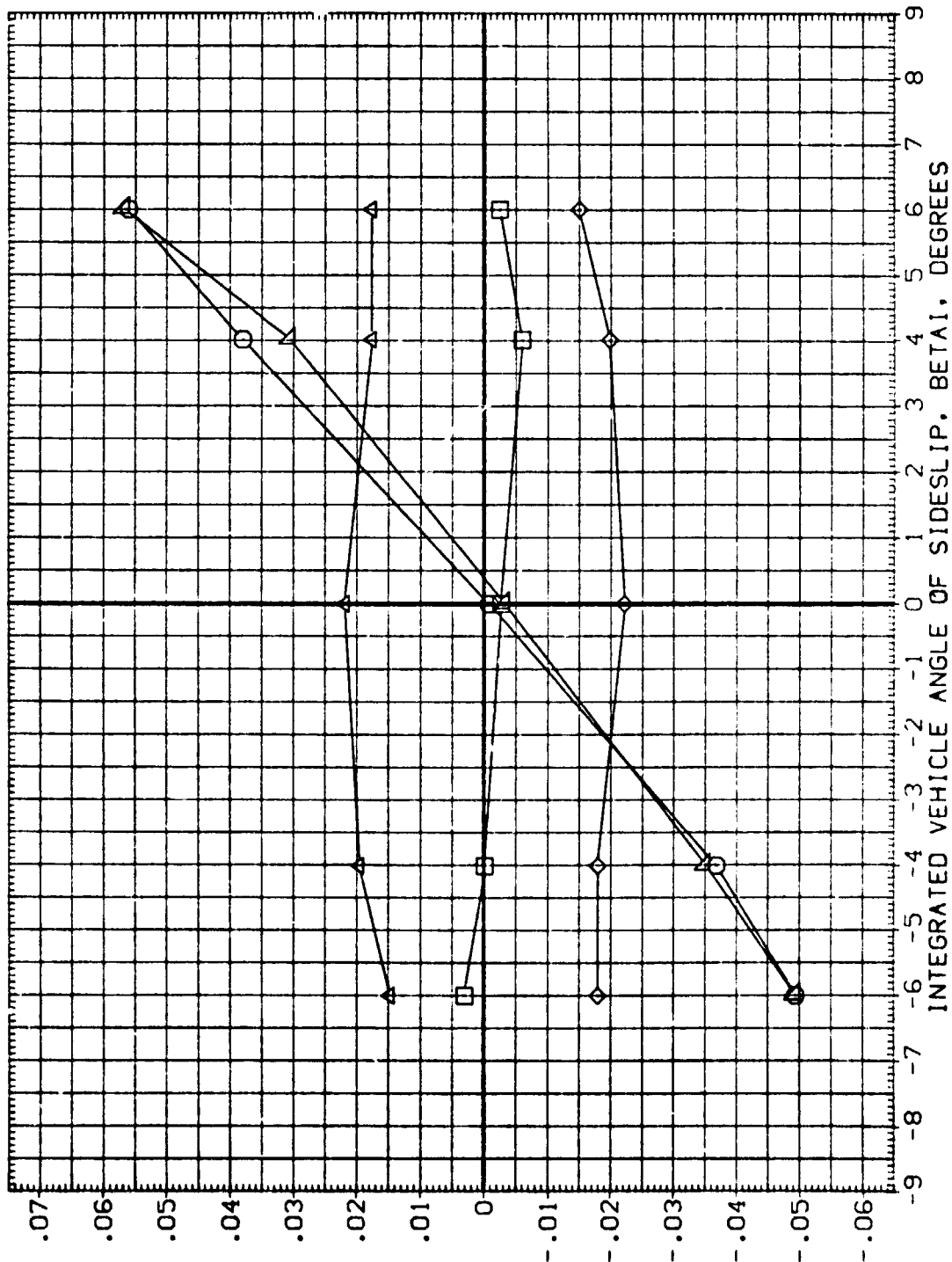


FIG. 18 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=0/0
(C)ALPHA= .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRK	REFERENCE INFORMATION	SO.FT.
(LETJ39)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	.000	.000	1.550	.000	SREF	2690.0000
(LETJ39)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	1.550	.000	LREF	1297.0000
(LETJ39)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	1.550	.000	BREF	1297.0000
(LETJ39)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	.000	.000	1.550	.000	YMRP	976.0000
(LETJ39)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	1.550	.000	ZMRP	400.0000
						SCALE	.0300

FOREBODY YAWING MOMENT COEFFICIENT, CYNF

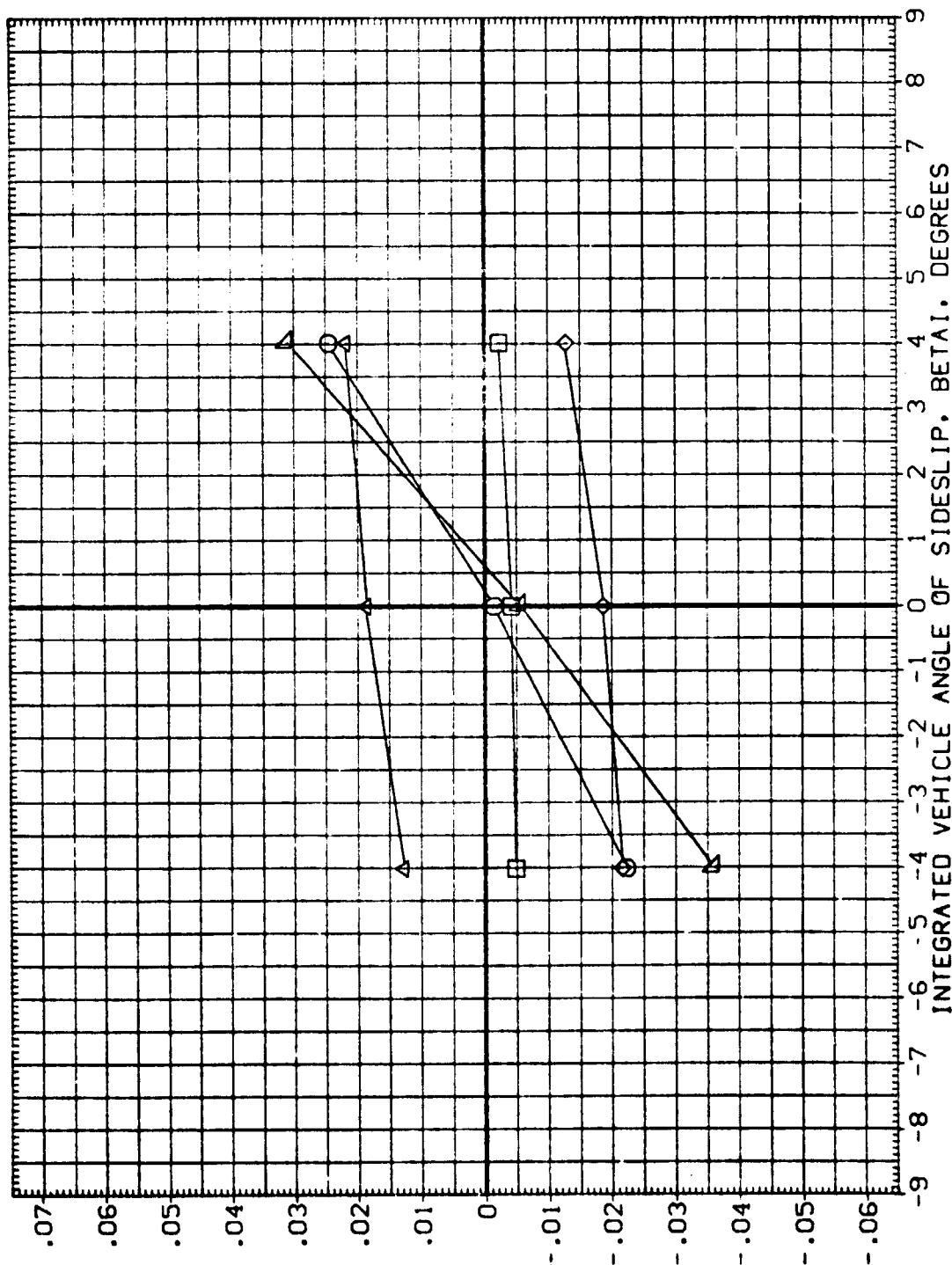


FIG. 18 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=0/0

(D)ALPHA= 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-CB	MACH	SPDRK	REFERENCE INFORMATION	
(LET039)	AME597-019(IAB1) LVAP ORBITER-ALL HL SEALED	.000	.000	1.550	.000	SREF	2690.0000 SQ.FT.
(LET139)	AME597-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	1.550	.000	LREF	1297.0000 IN.
(LET139)	AME597-019(IAB1) LVAP L-S98 - ALL HL SEALED	.000	.000	1.550	.000	BREF	1297.0000 IN.
(LET139)	AME597-019(IAB1) LVAP R-L98 - ALL HL SEALED	.000	.000	1.550	.000	XMRP	976.0000 IN.
(LET139)	AME597-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	1.550	.000	ZMRP	400.0000 IN.
						SCALE	.0300

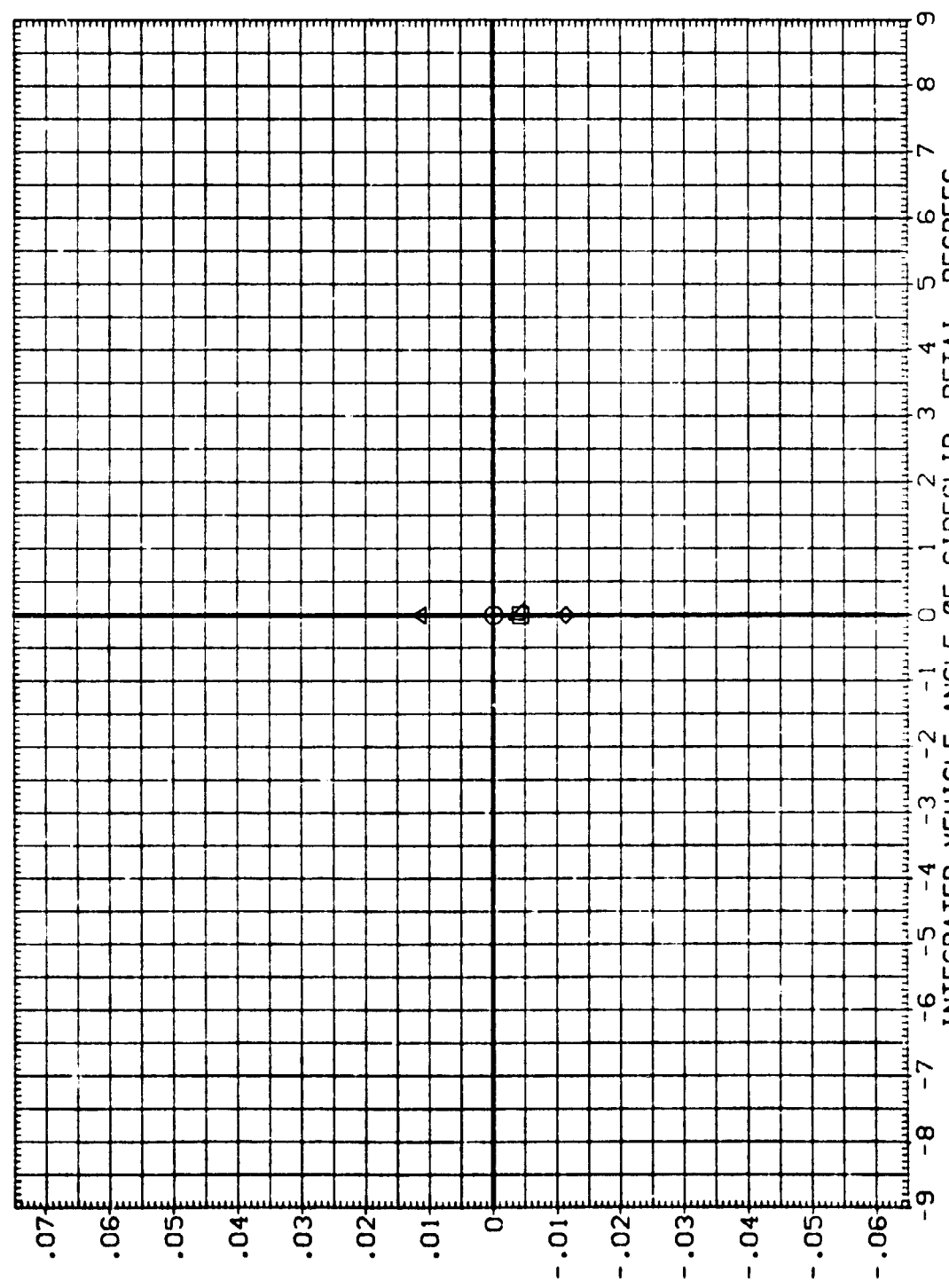


FIG. 18 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=0/0
 (E)ALPHA1= 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDRBK	REFERENCE INFORMATION
(LE1039)	AMES97-019(1A81) LVAP CRBITER-ALL HL SEALED	.000	.000	1.550	.000	SREF 2690.0000 SO.FT.
(LE1139)	AMES97-019(1A81) LVAP TASK - ALL HL SEALED	.000	.000	1.550	.000	LREF 1297.0000 IN.
(LE1139)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	.000	.000	1.550	.000	BREF 1297.0000 IN.
(LE1139)	AMES97-019(1A81) LVAP R-LRB - ALL HL SEALED	.000	.000	1.550	.000	XMRP 976.0000 IN.
(LE1139)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	.000	.000	1.550	.000	XMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

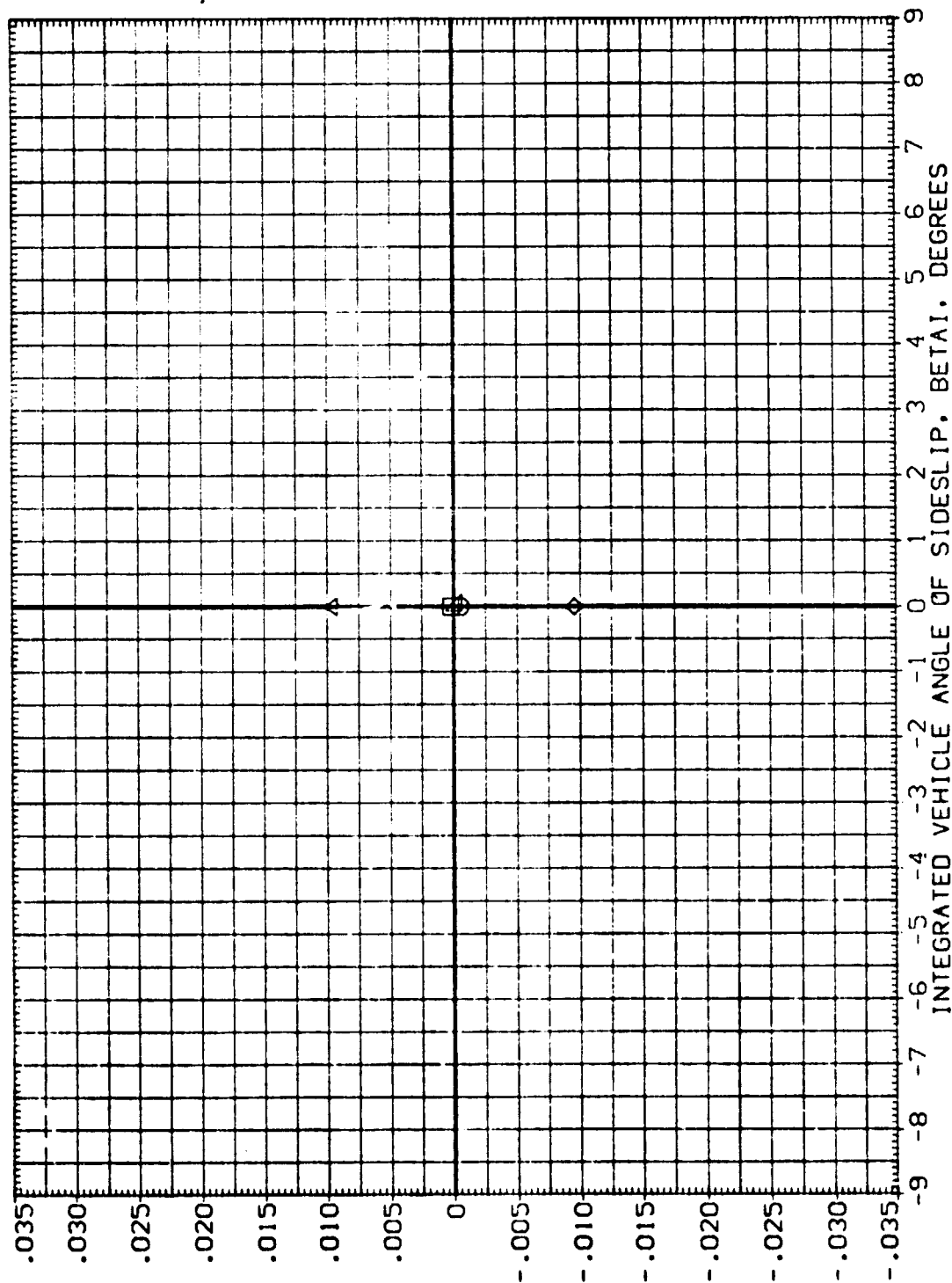


FIG. 18 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=0/0

(A) ALPHA = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(LE1039)	AMES97-019(1A81) LVAP SRB1TCR-ALL HL SEALED	.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LE1139)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	.000	.000	1.550	.000	LREF 1297.0000 IN.
(LE1239)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	.000	.000	1.550	.000	BREF 1297.0000 IN.
(LE1339)	AMES97-019(1A81) LVAP R-LRB ALL HL SEALED	.000	.000	1.550	.000	XMRP 976.0000 IN. XT
(LE1439)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	.000	.000	1.550	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

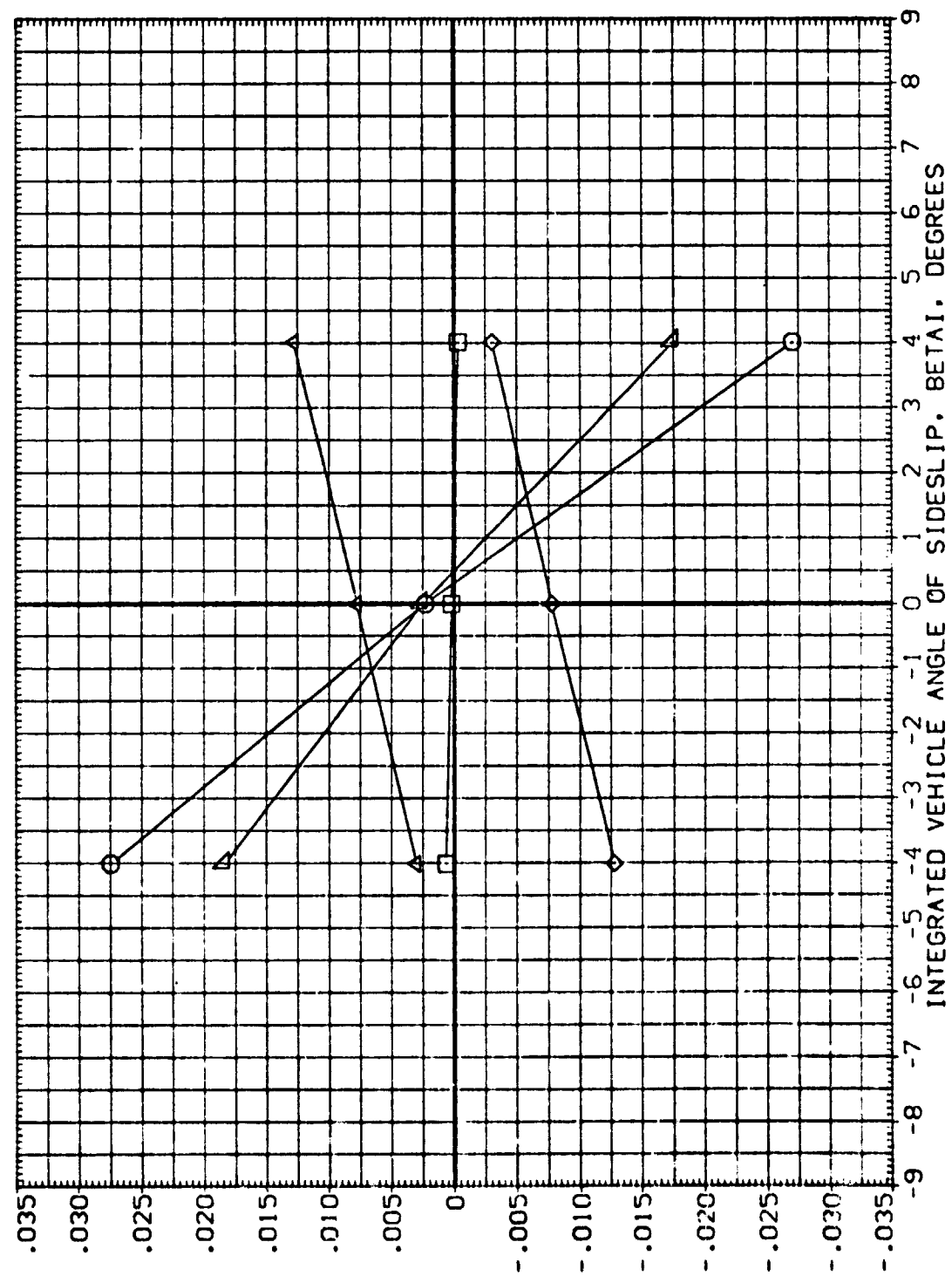


FIG. 18 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=0/0

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LE1039)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LE1139)	AMES97-015(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	1.550	.000	LREF 1297.0000 IN.
(LE1239)	AMES97-019(IAB1) LVAP L-SPB - ALL HL SEALED	.000	.000	1.550	.000	BREF 1297.0000 IN.
(LE1339)	AMES97-019(IAB1) LVAP R-LPB ALL HL SEALED	.000	.000	1.550	.000	XPBP 976.0000 IN.
(LE1439)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	1.550	.000	YMPP .0000 IN.
(LE1539)					.000	ZMPP 400.0000 IN.
						SCALE .0300

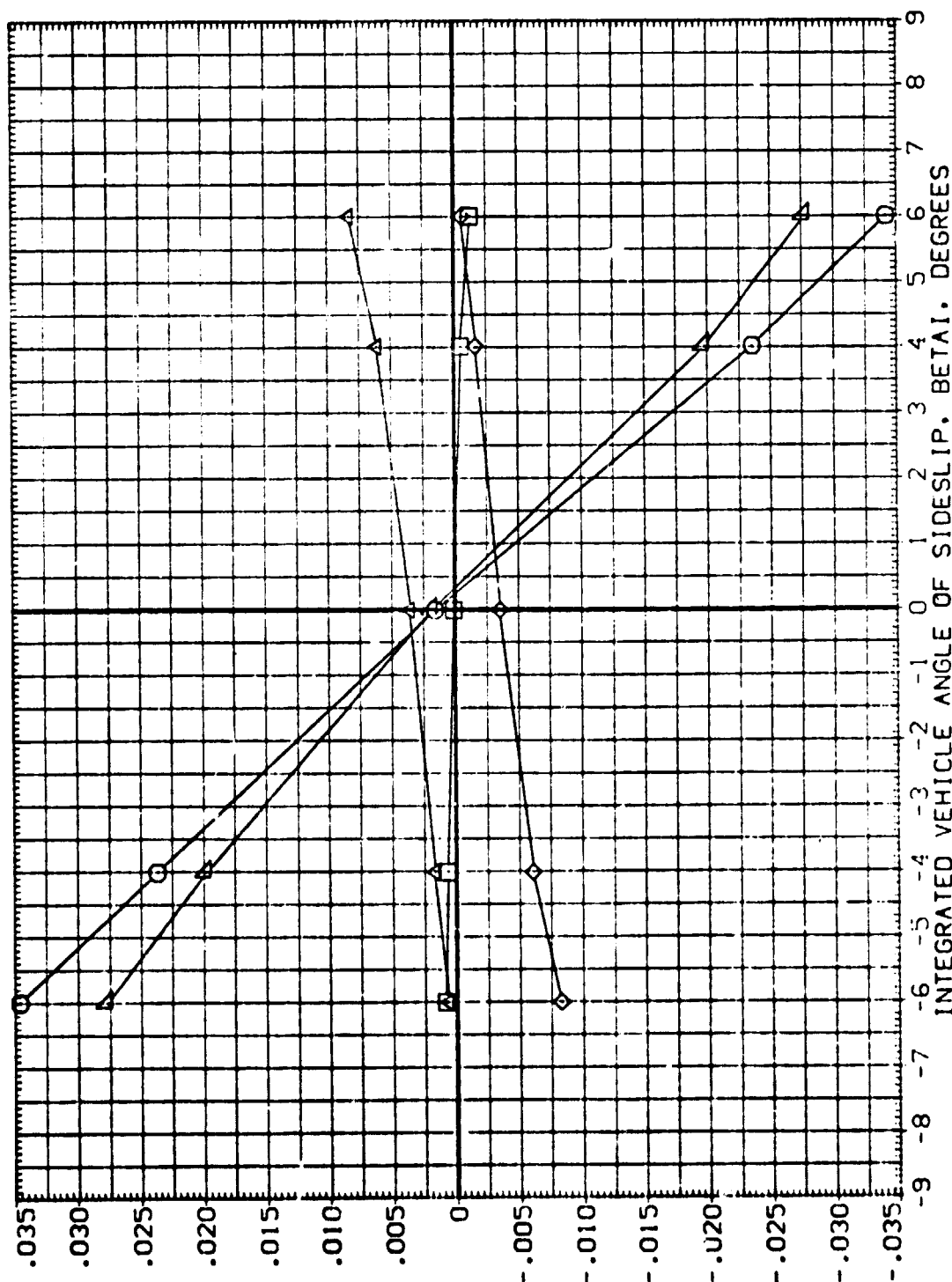


FIG. 18 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=0/0
(C)ALPHA= .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SP0BRK	REFERENCE INFORMATION
(LE1039)	APES97-019(1A81) LVAP CPBITER-ALL HL SEALED	.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LE1139)	APES97-019(1A81) LVAP TANK - ALL HL SEALED	.000	.000	1.550	.000	LREF 1297.0000 IN.
(LE1L39)	APES97-019(1A81) LVAP L-SRB - ALL HL SEALED	.000	.000	1.550	.000	BREF 1297.0000 IN.
(LE1R39)	APES97-019(1A81) LVAP R-LPB ALL HL SEALED	.000	.000	1.550	.000	XMRP 976.0000 IN. XT
(LE1139)	APES97-019(1A81) LVAP INT VEH ALL HL SEALED	.000	.000	1.550	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

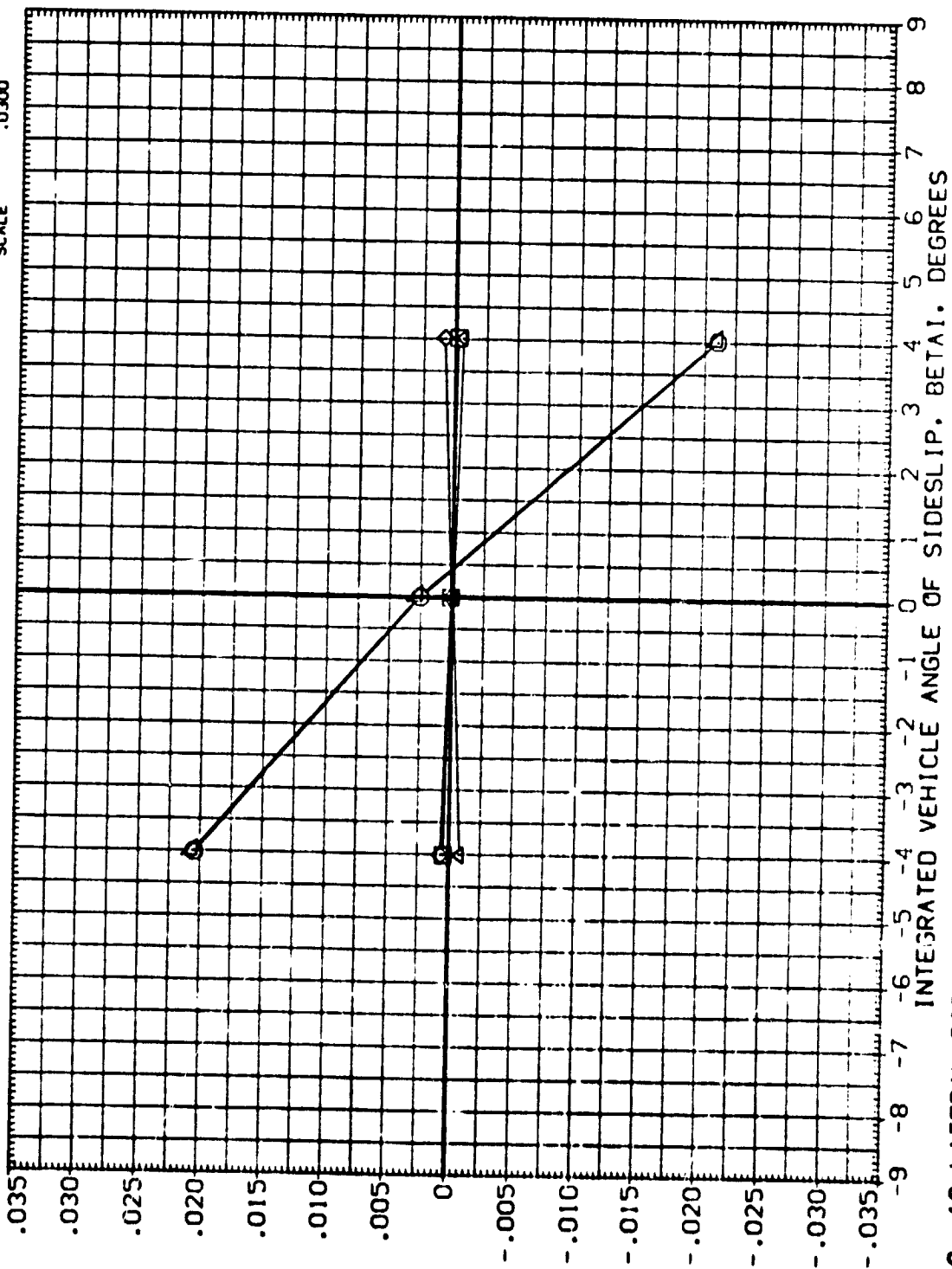


FIG. 18 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=0/0
(D)ALPHA= 4.00

DATA SET SYMBOL CONFIGURATION DESCRIPTION

DATA SET SYMBOL	CONFIGURATION	DESCRIPTION	ELV-18	ELV-CB	MACH	SPDRK	REFERENCE INFORMATION
(LE1039)	APES97-0191(A8)	LVAP	.000	.000	1.550	.000	SREF 2690.0000
(LE1139)	APES97-0191(A8)	LVAP	.000	.000	1.550	.000	LREF 1297.0000
(LE1239)	APES97-0191(A8)	LVAP	.000	.000	1.550	.000	BREF 1297.0000
(LE1339)	APES97-0191(A8)	LVAP	.000	.000	1.550	.000	YMRP 976.0000
(LE1439)	APES97-0191(A8)	LVAP	.000	.000	1.550	.000	ZMRP 400.0000
(LE1539)	APES97-0191(A8)	LVAP	.000	.000	1.550	.000	SCALE .0300

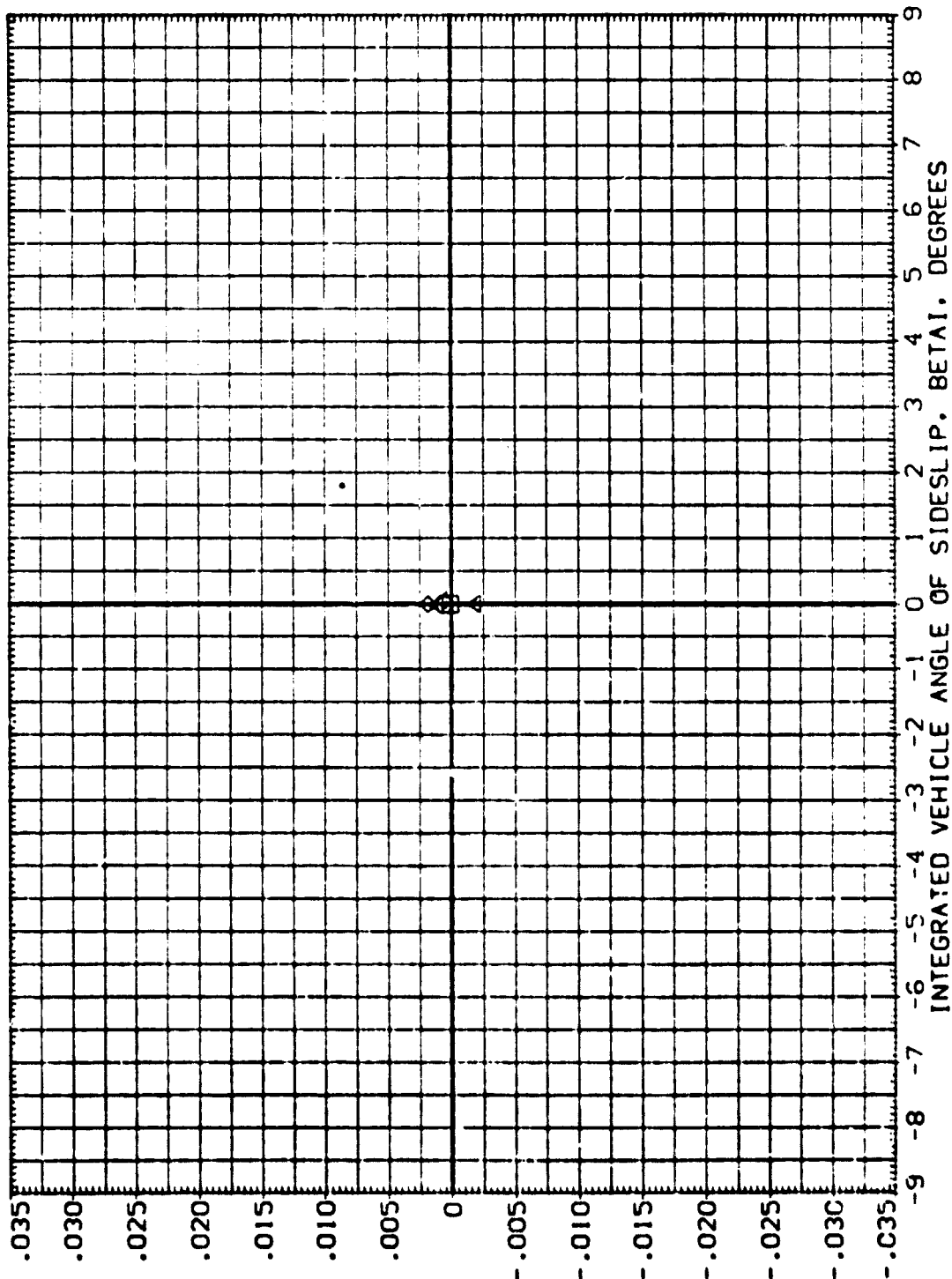


FIG. 18 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=0/0
(E)ALPHA= 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(LE1039)	AMES97-019(IAB1) LVAP OPB1TER-ALL ML SEALED	.000	.000	1.550	.000	CREF 2690.0000 SQ.FT.
(LE1139)	AMES97-019(IAB1) LVAP TANK - ALL ML SEALED	.000	.000	1.550	.000	LREF 1297.0000 IN.
(LE1239)	AMES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	.000	.000	1.550	.000	BREF 1297.0000 IN.
(LE1339)	AMES97-019(IAB1) LVAP R-LRB ALL ML SEALED	.000	.000	1.550	.000	XMRP 976.0000 IN. XT
(LE1439)	AMES97-019(IAB1) LVAP INT VEH ALL ML SEALED	.000	.000	1.550	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

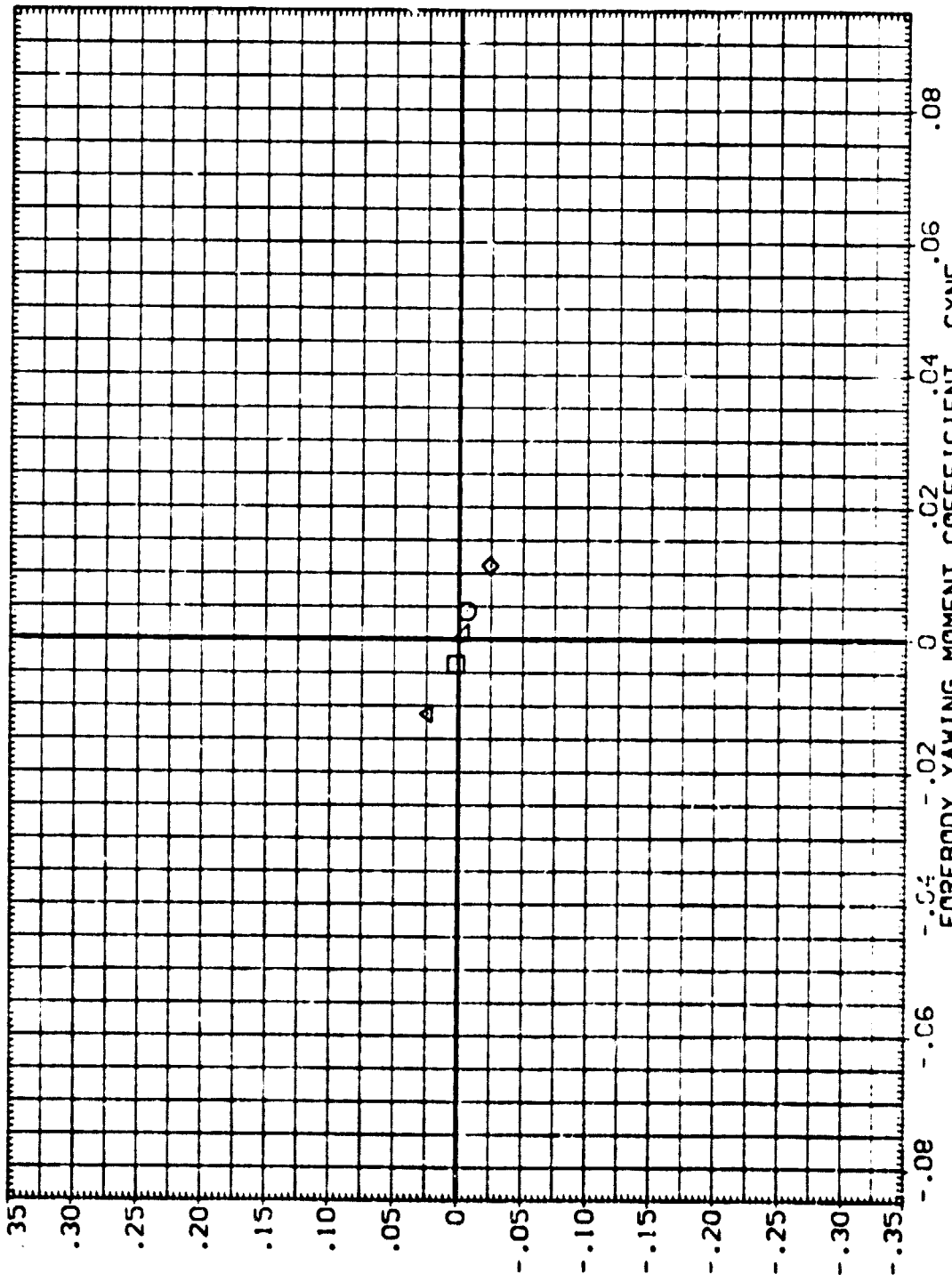


FIG. 18 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=0/0
 (A) ALPHA = -6.00

DATA SET SYMBOL CONFIGURATION DESCRIPTION

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-09	MACH	SPDRK	REFERENCE INFORMATION
(LE10J9)	AMES97-019(IAB1) LVAP ORBITER-ALL ML SEALED	.000	.000	1.550	.000	SREF 2690.0000 SO.FT.
(LE11J9)	AMES97-019(IAB1) LVAP TANK - ALL ML SEALED	.000	.000	1.550	.000	LREF 1297.0000 IN.
(LE12J9)	AMES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	.000	.000	1.550	.000	BREF 1297.0000 IN.
(LE13J9)	AMES97-019(IAB1) LVAP R-LRB - ALL ML SEALED	.000	.000	1.550	.000	XMRP 976.0000 IN.
(LE14J9)	AMES97-019(IAB1) LVAP INT VEM ALL ML SEALED	.000	.000	1.550	.000	YMRP .0000 IN.
(LE15J9)		.000	.000	1.550	.000	ZMRP 400.0000 IN.
						SCALE .0300

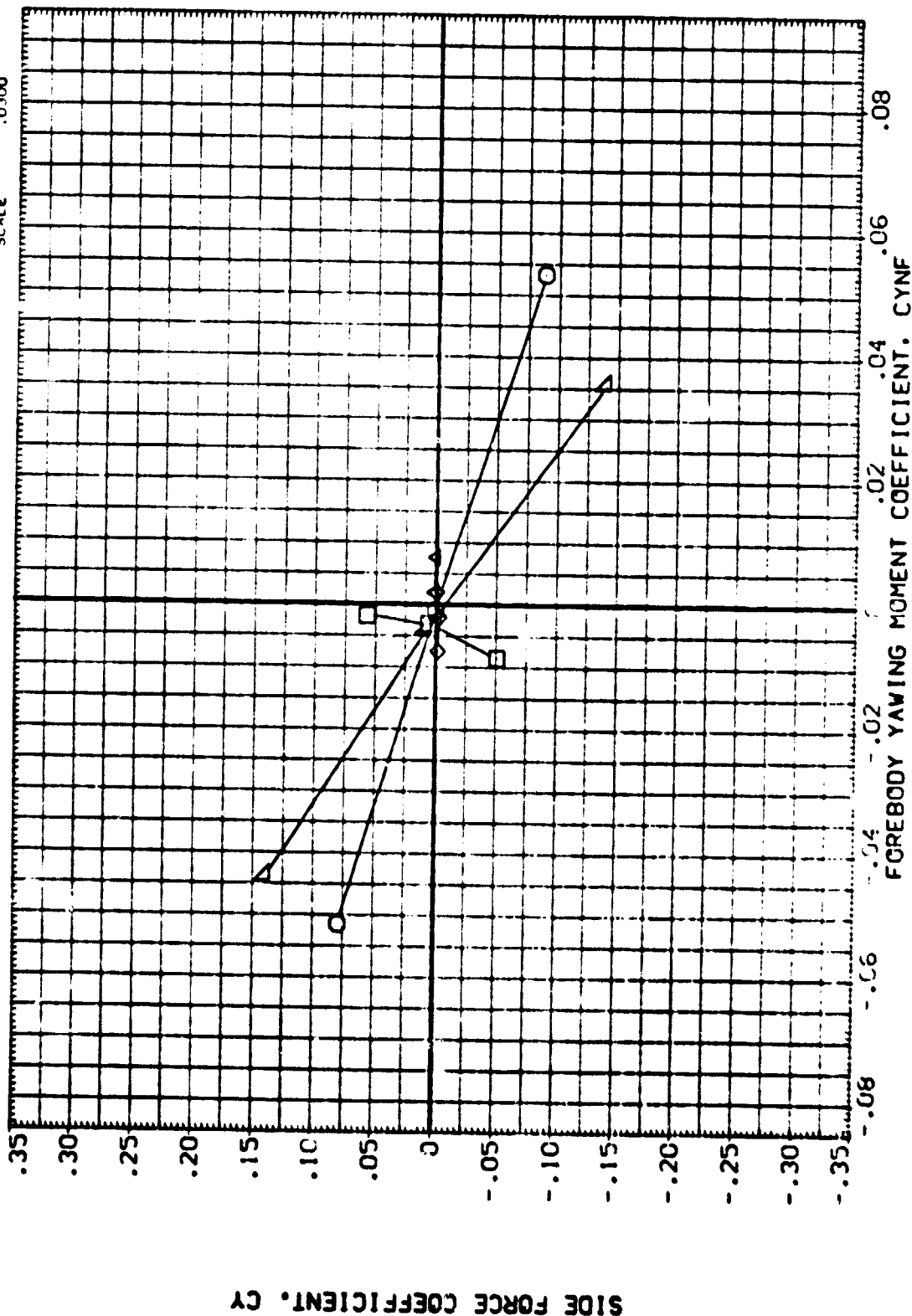


FIG. 18 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=0/0

(B) ALPHA 1.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPC BRK	REFERENCE INFORMATION
(LE1039)	AME597-019(1A61) LVAP	.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LE1139)	AME597-019(1A61) LVAP	.000	.000	1.550	.000	LREF 1297.0000 IN.
(LE1239)	AME597-019(1A81) LVAP	.000	.000	1.550	.000	BREF 1297.0000 IN.
(LE1339)	AME597-019(1A81) LVAP	.000	.000	1.550	.000	YMRP 976.0000 IN. XT
(LE1439)	AME597-019(1A81) LVAP	.000	.000	1.550	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

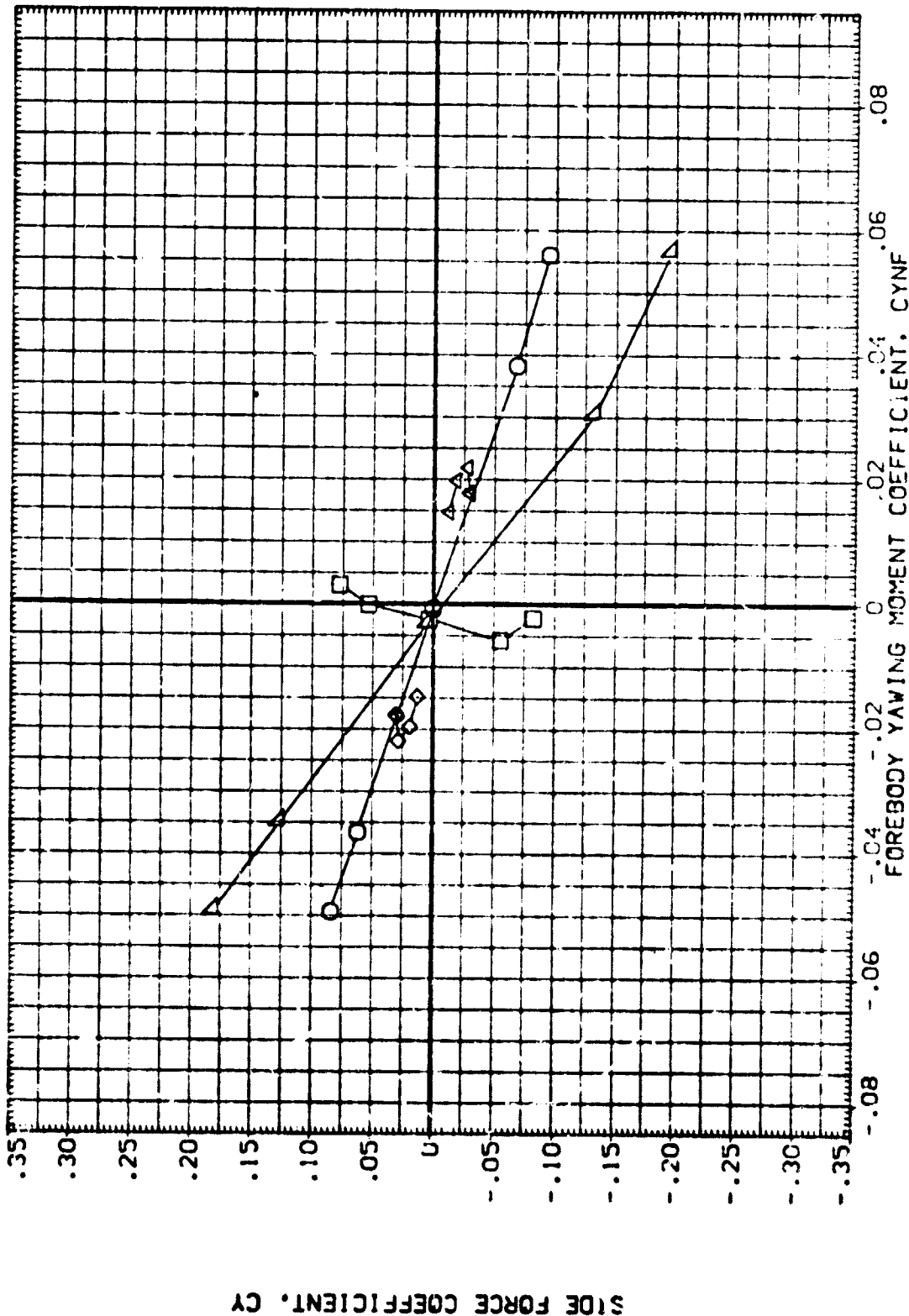


FIG. 18 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=0/0

(C) ALPHA = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LE1039)	AMES97-019(IAB1) LVAP ORB1 TER-ALL HL SEALED	.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LE1139)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	1.550	.000	LREF 1297.0000 IN.
(LE1239)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	1.550	.000	BREF 1297.0000 IN.
(LE1339)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	.000	.000	1.550	.000	YMRP 976.0000 IN. XT
(LE1439)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	1.550	.000	ZMRP 400.0000 IN. YT
(LE1539)						SCALE .0300

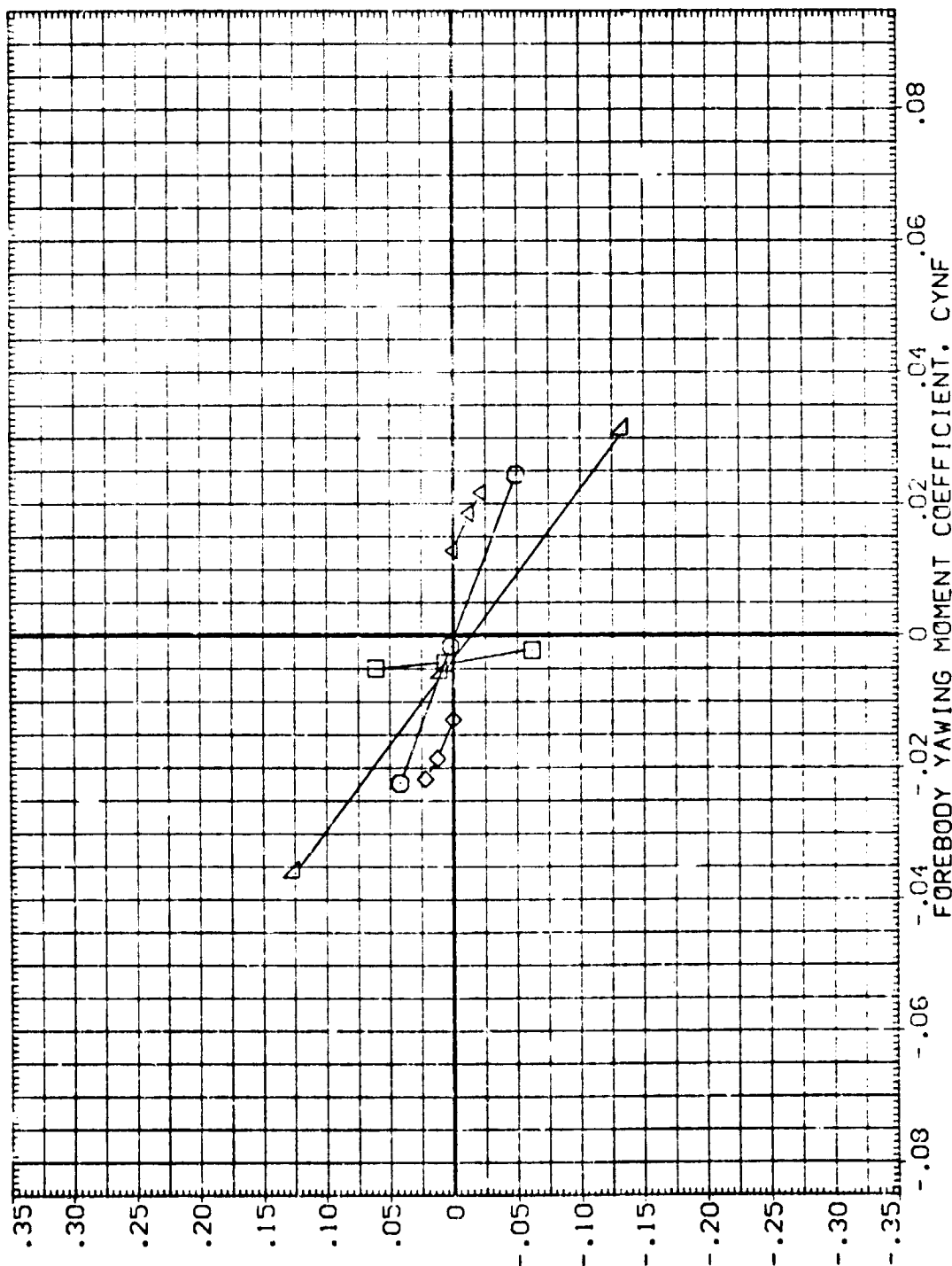


FIG. 18 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=1.55$ DEV=0/0

(D)ALPHA= 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LE1039)	AMES97-019C(1A81) LVAP ORBITER-ALL HL SEALED	.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LE1139)	AMES97-019C(1A81) LVAP TANK - ALL HL SEALED	.000	.000	1.550	.000	LREF 1297.0000 IN.
(LE1239)	AMES97-019C(1A81) LVAP L-SRB - ALL HL SEALED	.000	.000	1.550	.000	BREF 1297.0000 IN.
(LE1339)	AMES97-019C(1A81) LVAP R-LRB - ALL HL SEALED	.000	.000	1.550	.000	XMRP 976.0000 IN. XT
(LE1439)	AMES97-019C(1A81) LVAP INT VEH ALL HL SEALED	.000	.000	1.550	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

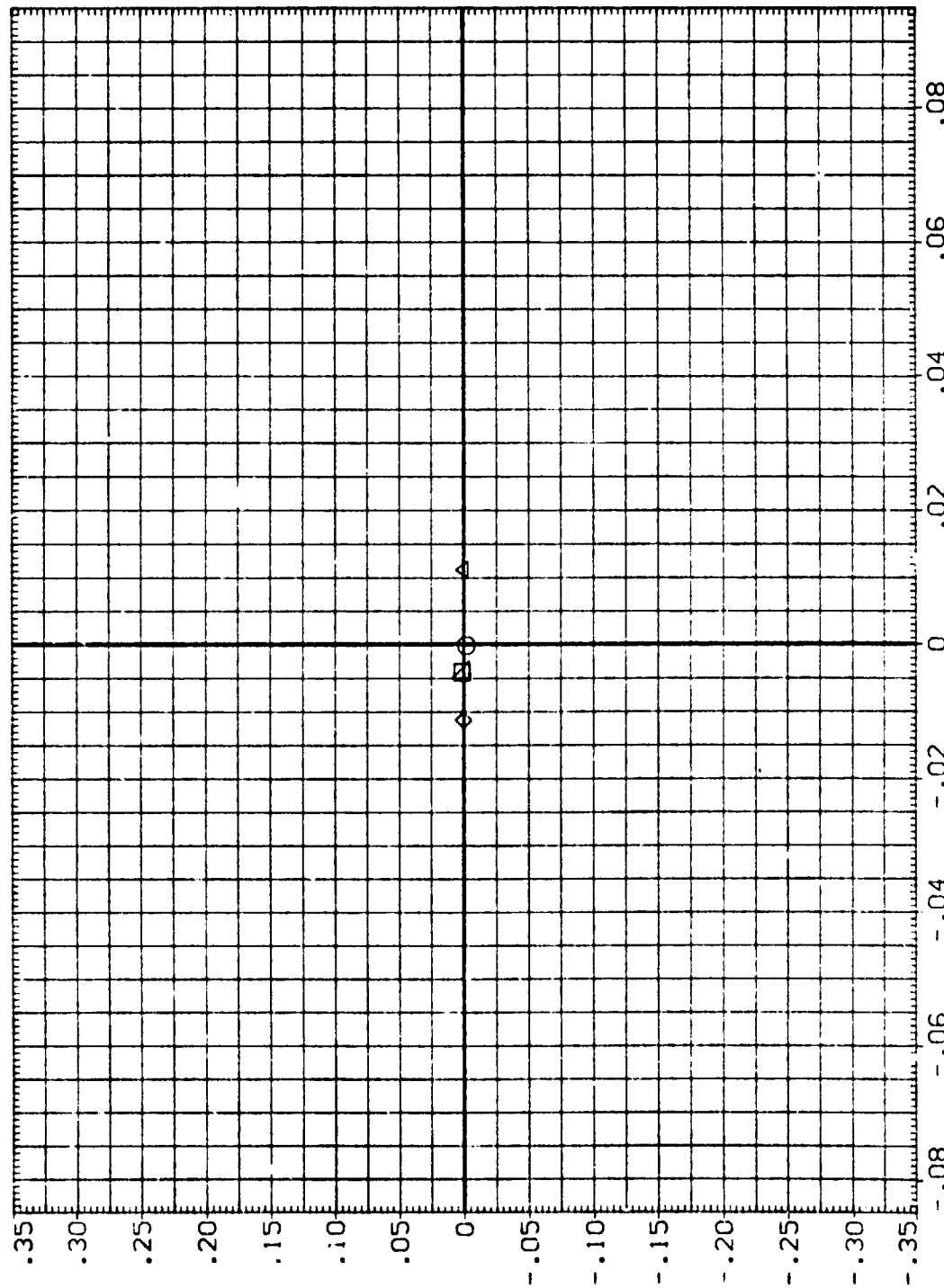


FIG. 18 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=1.55$ DEV=0/0

(E)ALPHA= 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(LE1039)	AMES97-019(1A81) LVAP CRBITTER-ALL HL SEALED	.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LE1139)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	.000	.000	1.550	.000	LREF 1297.0000 IN.
(LE1239)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	.000	.000	1.550	.000	BREF 1297.0000 IN.
(LE1339)	AMES97-019(1A81) LVAP R-LRB ALL HL SEALED	.000	.000	1.550	.000	YMRP 976.0000 IN. XT
(LE1439)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	.000	.000	1.550	.000	ZMRP 400.0000 IN. YT
(LE1539)						SCALE .0300

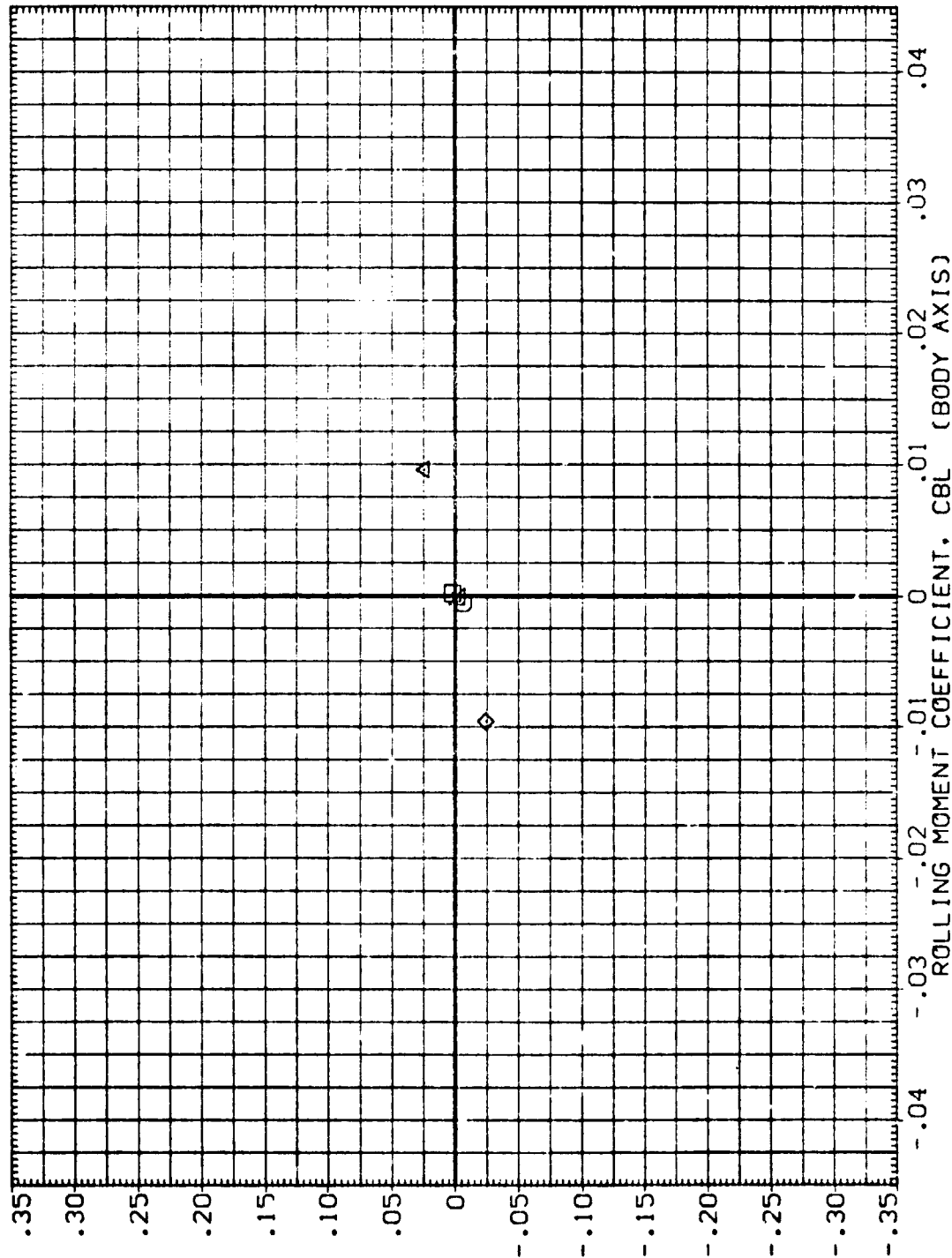


FIG. 18 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=0/0
(A) ALPHA = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(LET139)	AMES97-019(1A81) LVAP	.000	.000	1.550	.000	SREF 2690.0000 SO.FT.
(LET139)	AMES97-013(1A81) LVAP	.000	.000	1.550	.000	LREF 1297.0000 IN.
(LET139)	AMES97-019(1A81) LVAP	.000	.000	1.550	.000	BREF 1297.0000 IN.
(LET139)	AMES97-019(1A81) LVAP	.000	.000	1.550	.000	XMRP 976.0000 IN. XT
(LET139)	AMES97-019(1A81) LVAP	.000	.000	1.550	.000	YMRP .0000 IN. YT
(LET139)	AMES97-019(1A81) LVAP	.000	.000	1.550	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

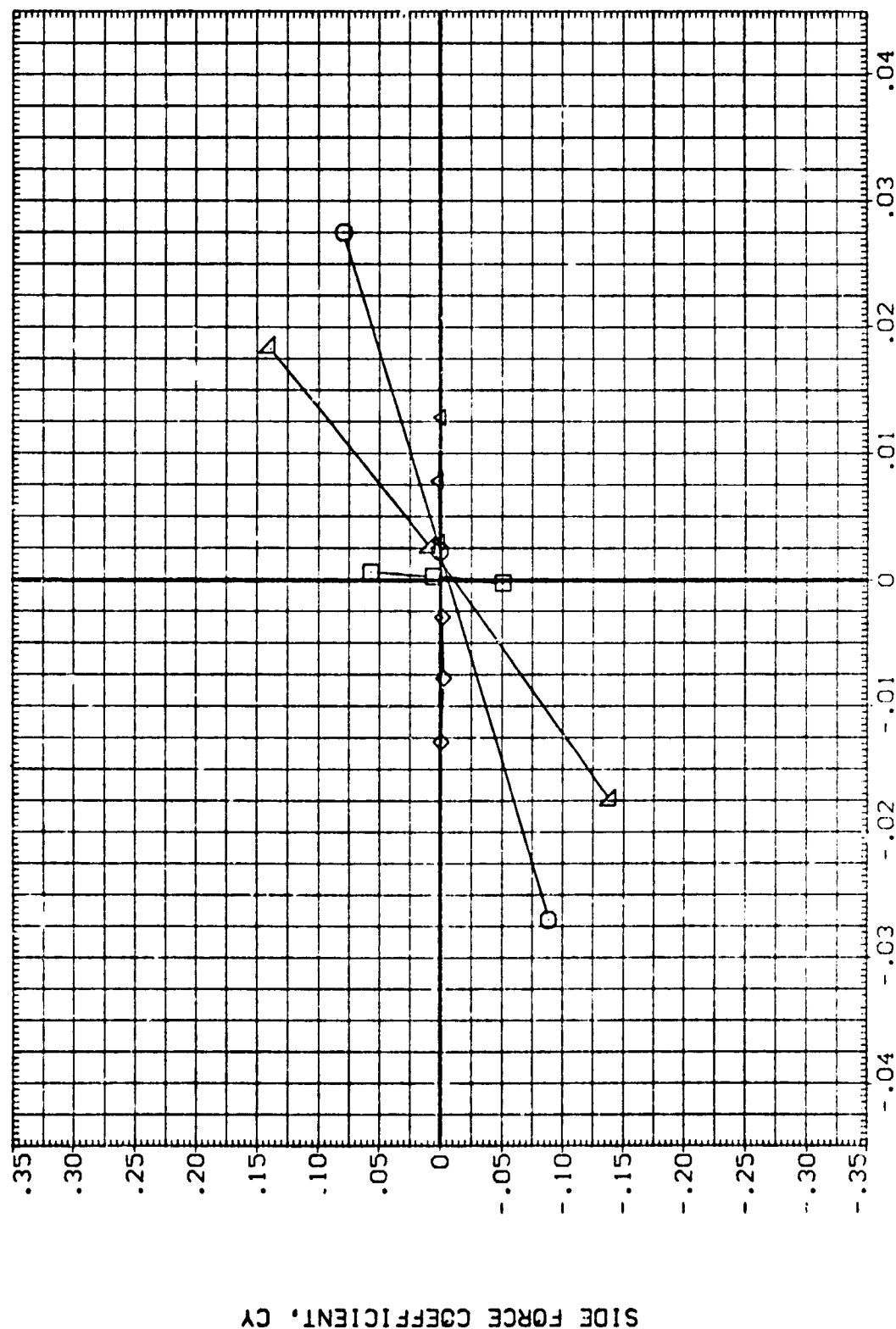


FIG. 18 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=1.55$ DEV=0/0

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPOBRK	REFERENCE INFORMATION
(LETO39)	AMES97-019(IAB1) LVAP DRBITTER-ALL HL SEALED	.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LETT39)	AMES97-019(IAB1) LVAP TA'K - ALL HL SEALED	.000	.000	1.550	.000	LREF 1297.0000 IN.
(LETT39)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	1.550	.000	BREF 1297.0000 IN.
(LETT39)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	.000	.000	1.550	.000	XMPP 976.0000 IN. XT
(LETT39)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	1.550	.000	YMPP 400.0000 IN. YT
						ZMPP 400.0000 IN. ZT
						SCALE .0300

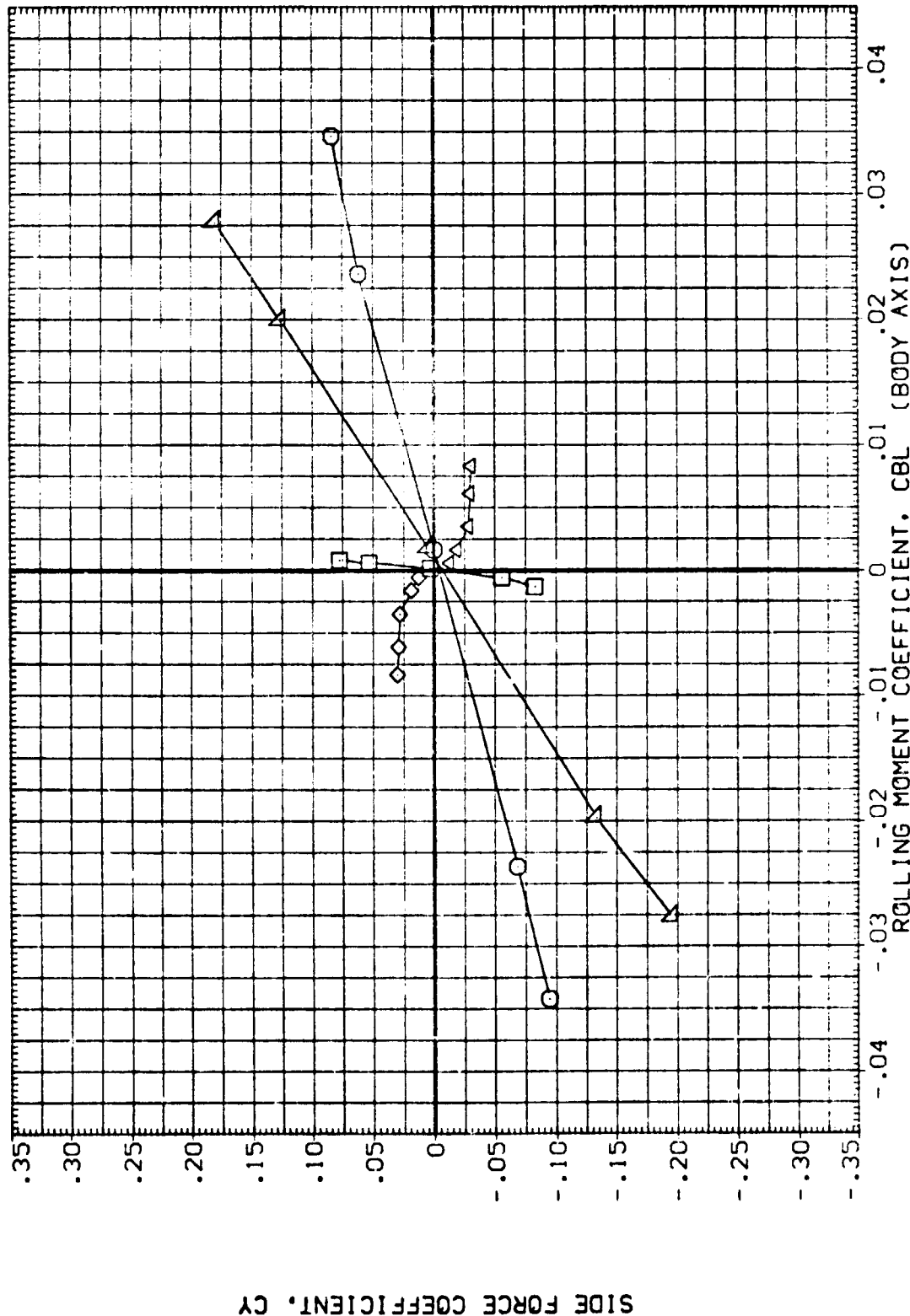


FIG. 18 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=0/0

(C)ALPHA= .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LETO39)	AMES97-019(A81) LVAP	.000	.000	1.550	.000	SREF 2690.000C SQ.FT.
(LETT39)	AMES97-019(A81) LVAP	.000	.000	1.550	.000	LREF 1297.0000 IN.
(LETL39)	AMES97-019(A81) LVAP	.000	.000	1.550	.000	BREF 1297.0000 IN.
(LETR39)	AMES97-019(A81) LVAP	.000	.000	1.550	.000	YMRP 976.0000 IN. XT
	AMES97-019(A81) LVAP INT VEH ALL HL SEALED	.000	.000	1.550	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

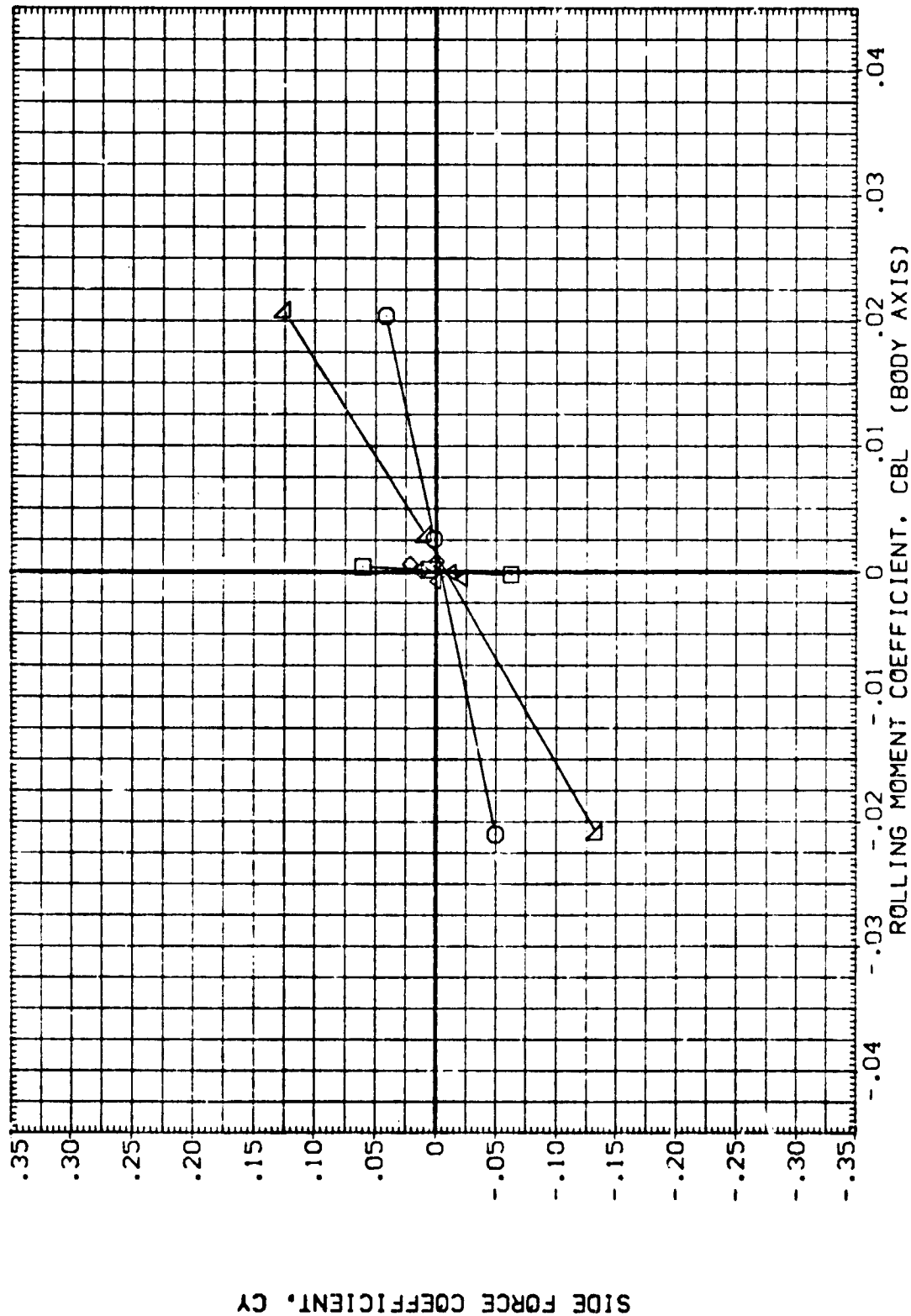


FIG. 18 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=0/0
 (D)ALPHA= 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LE1039)	AMES97-019(IAB1) LVAP	.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LE1139)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	1.550	.000	LREF 1297.0000 IN.
(LE1239)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	1.550	.000	BREF 1297.0000 IN.
(LE1339)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	.000	.000	1.550	.000	XMRP 576.0000 IN. XI
(LE1439)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	1.550	.000	YMRP 400.0000 IN. YI
						ZMRP 400.0000 IN. ZI
						SCALE .0300

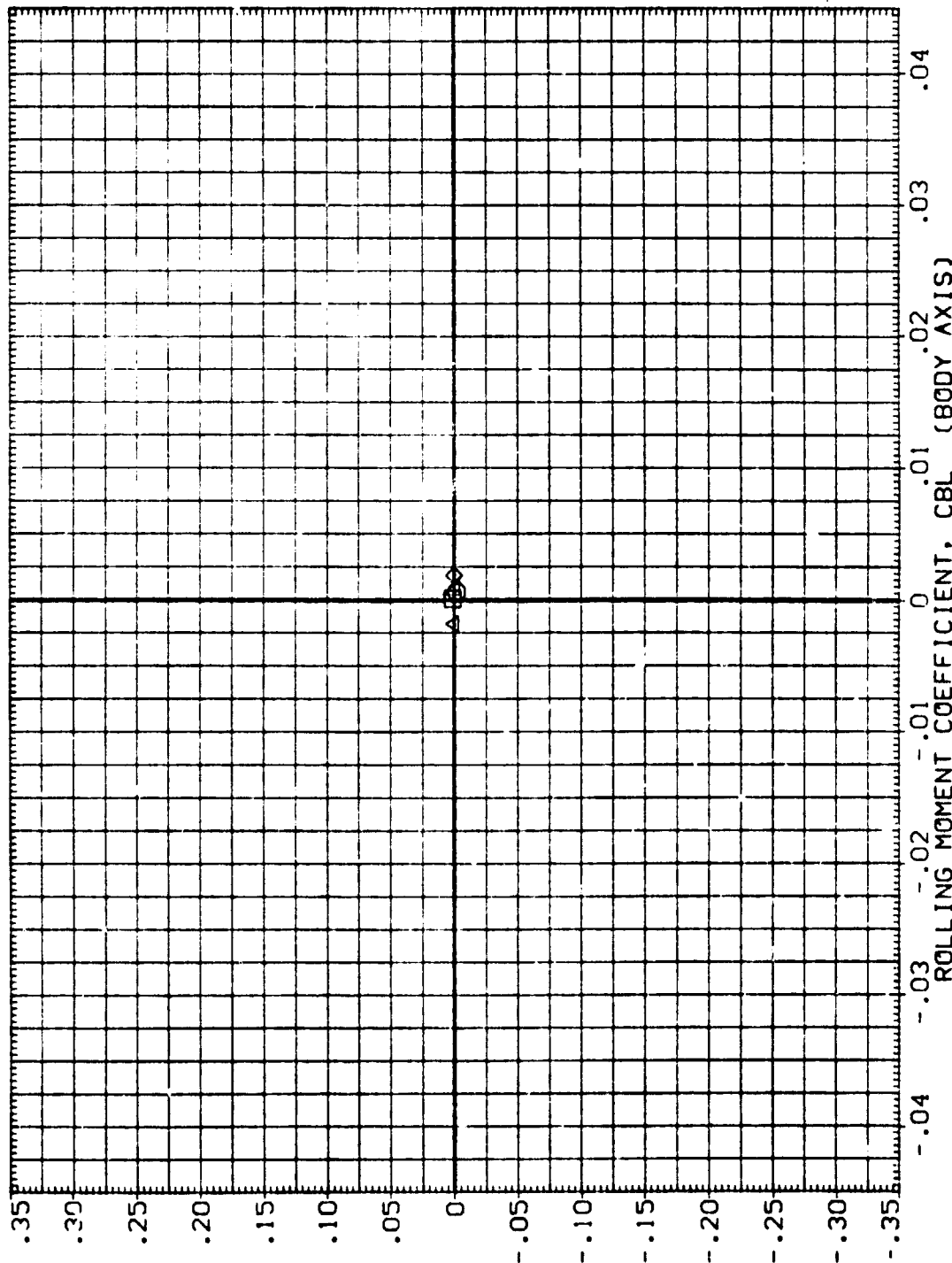


FIG. 18 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=0/0

(E)ALPHA1= 5.00

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DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-UB	MACH	SP08RK	REFERENCE INFORMATION
(LETO43)	□	AMES97-019(1A81) LVAP ORBITER-ALL HL SEALED	8.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LETT43)	□	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(LETL43)	□	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN.
(LETR43)	□	AMES97-019(1A81) LVAP R-LRB - ALL HL SEALED	8.000	.000	1.550	.000	YMRP 976.0000 IN.
(LETT43)	□	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	.000	1.550	.000	ZMRP 400.0000 IN.
							SCALE .0300

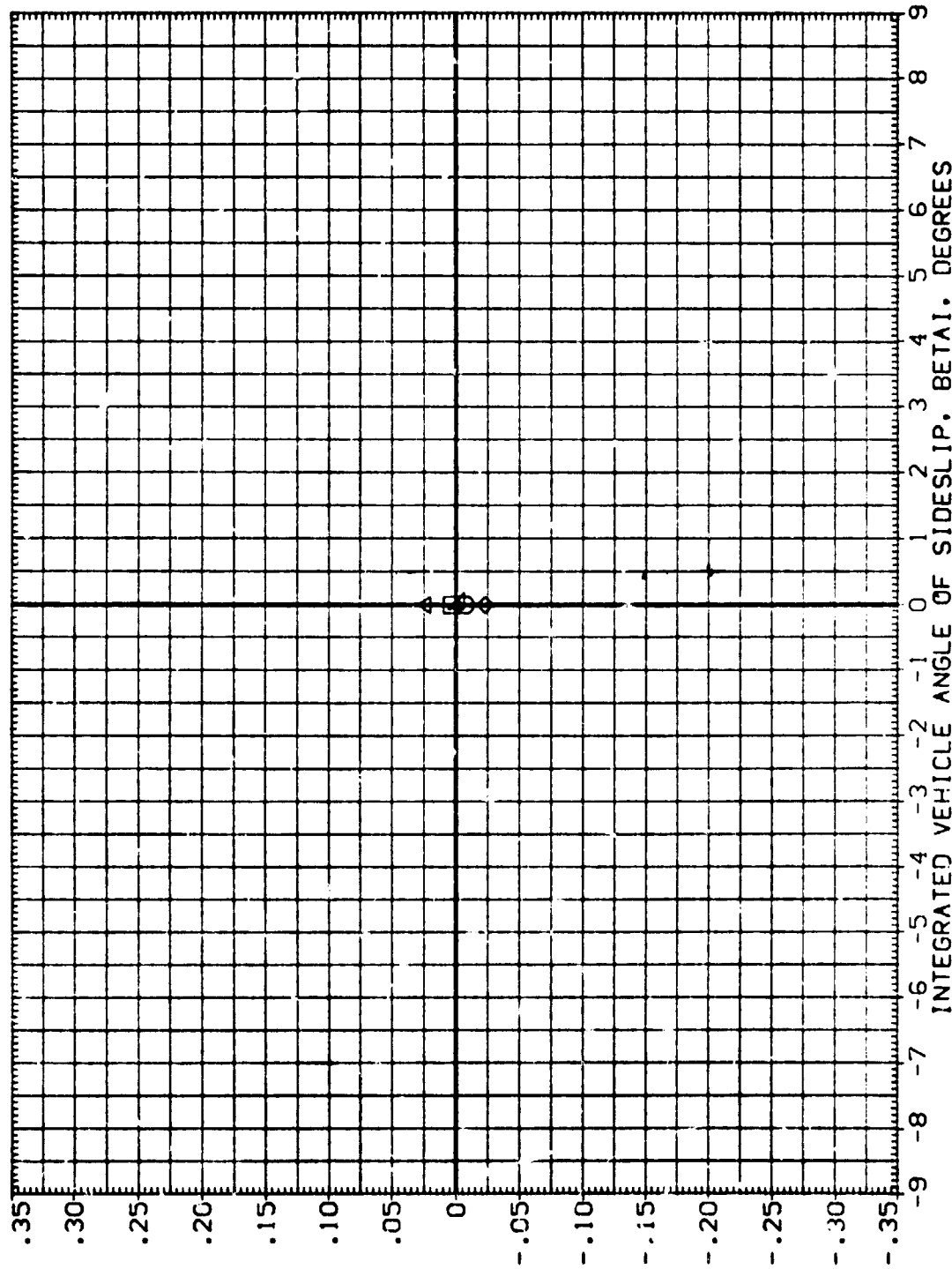


FIG. 19 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0

(A) ALPHA = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(LET043)	AMES97-019(IAB1) LVAP CRBITER-ALL HL SEALED	8.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LET143)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(LET143)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN.
(LET143)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	8.000	.000	1.550	.000	XPRP 976.0000 IN. XT
(LET143)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	1.550	.000	YPRP 400.0000 IN. YT
						ZPRP 400.0000 IN. ZT
						SCALE .0300

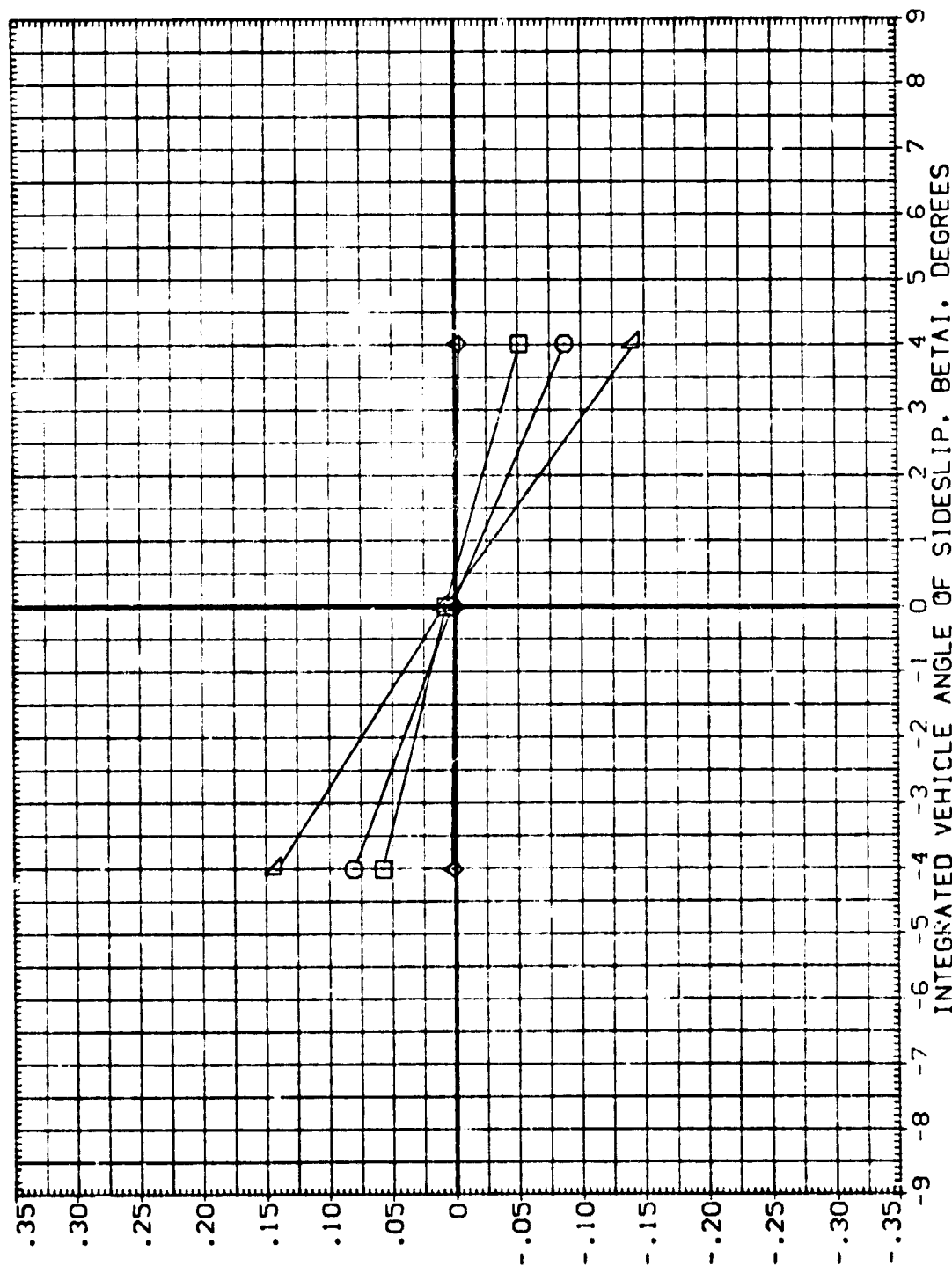
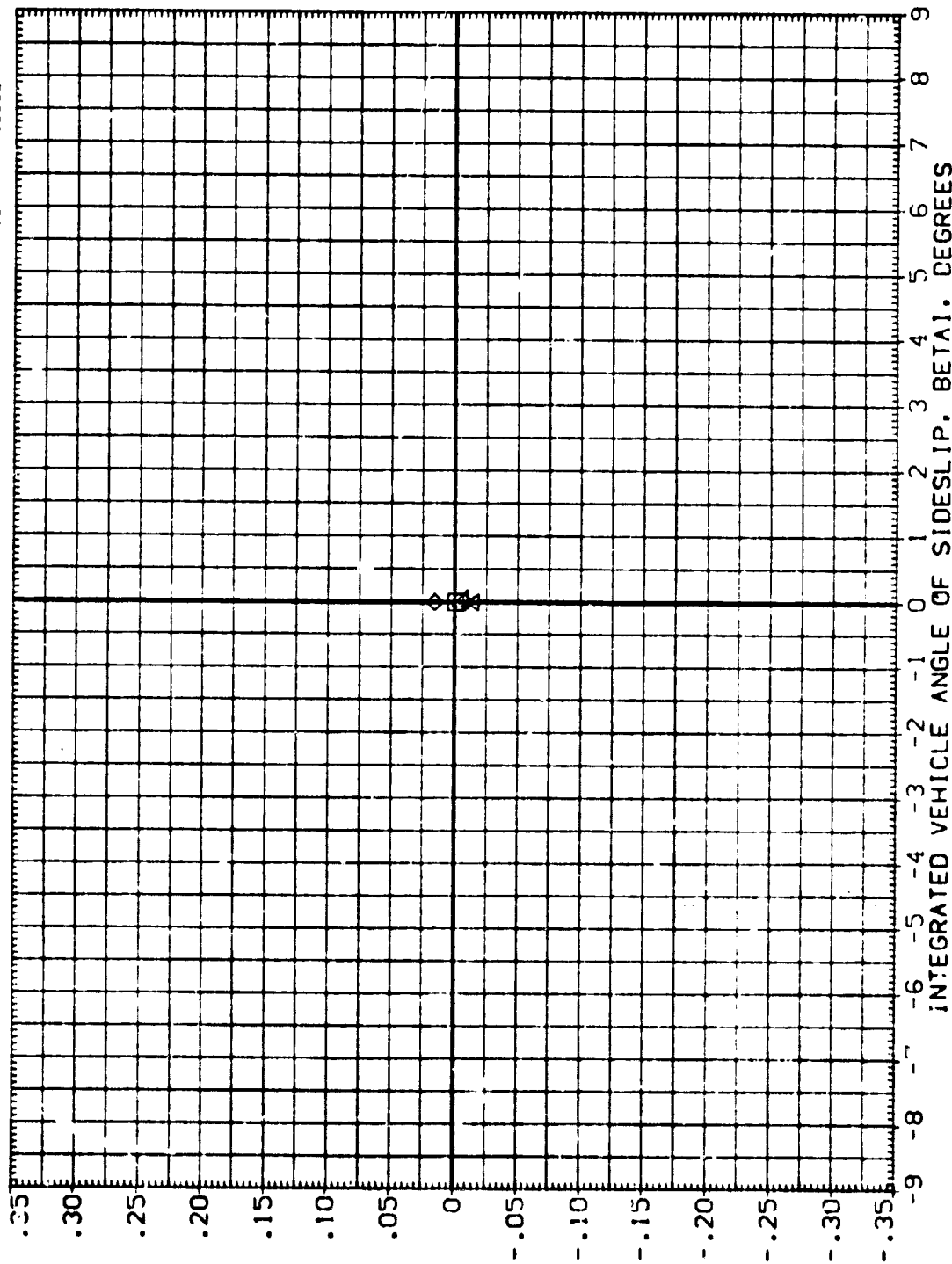


FIG. 19 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0

(B) ALPHA = -4.00

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LETO43)		AMES97-019(1A81) LVAP CR31TER-ALL HL SEALED	8.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LETT43)		AMES97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	.000	1.550	.000	REF 1297.0000 IN.
(LETL43)		AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN.
(LETR43)		AMES97-019(1A81) LVAP R-LRB ALL HL SEALED	8.000	.000	1.550	.000	XMRP 976.0000 IN. XT
(LETT43)		AMES97-019(1A81) LVAP INT VEW ALL HL SEALED	8.000	.000	1.550	.000	YMRP .0000 IN. YT
							ZMRP 400.0000 IN. ZT
							SCALE .0303



SIDE FORCE COEFFICIENT, CY

FIG. 19 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0

(C) ALPHA = -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-09	MACH	SPOBRK	REFERENCE INFORMATION
(LE1043)	AME597-019(1A81) LVAP ORBITER-ALL HL SEALED	8.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LE1143)	AME597-019(1A81) LVAP TANK - ALL HL SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(LE1443)	AME597-019(1A81) LVAP L-SRB - ALL HL SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN.
(LE1443)	AME597-019(1A81) LVAP R-LRB - ALL HL SEALED	8.000	.000	1.550	.000	XMRP 976.0000 IN.
(LE1443)	AME597-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	.000	1.550	.000	ZMRP 400.0000 IN.
						SCALE .0300

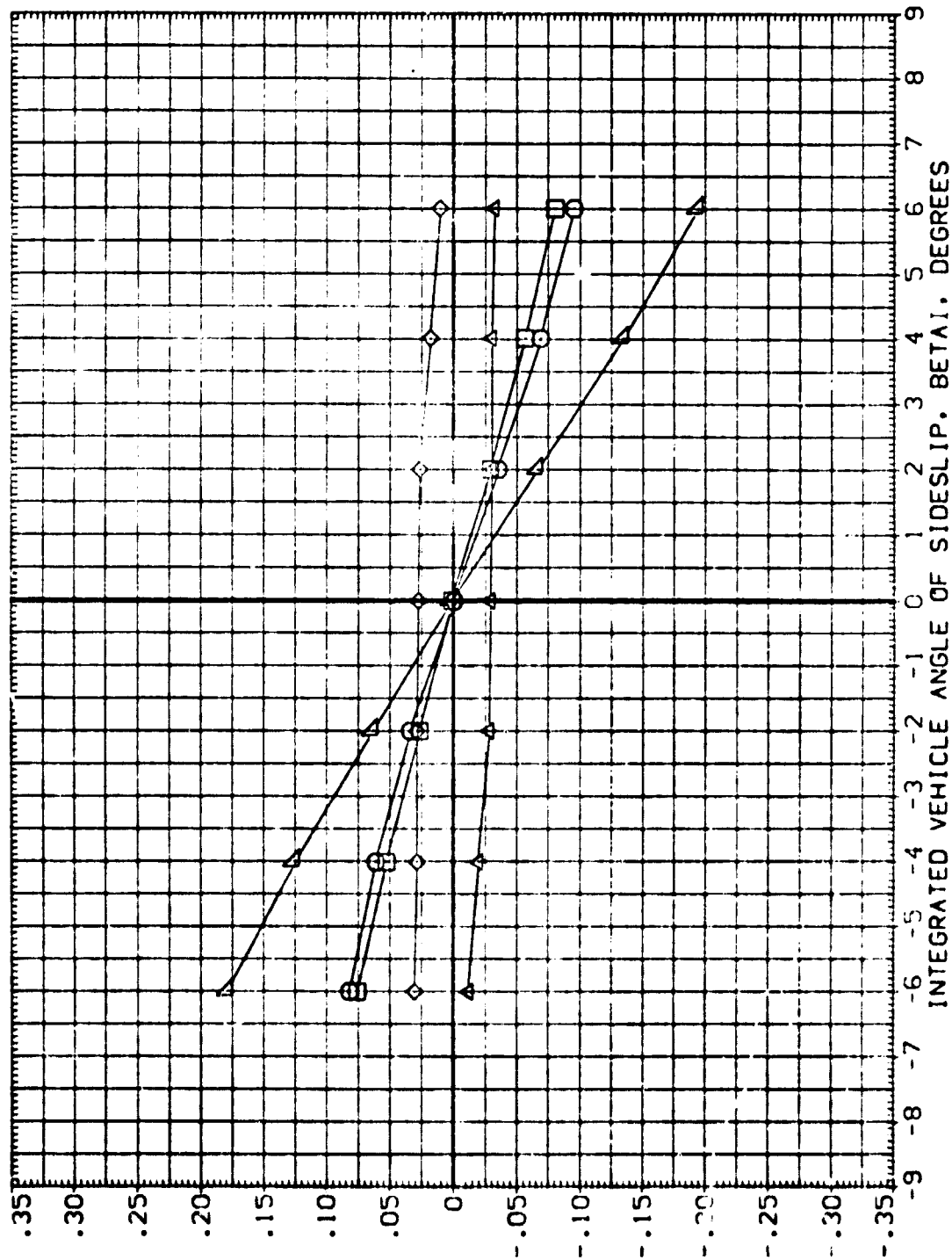


FIG. 19 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0

REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDRMK	REFERENCE INFORMATION
(LETO43)	AVE597-019(1A81) LVAP ORBITTER-ALL ML SEALED	8.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LETT43)	AVE597-019(1A81) LVAP TANK - ALL ML SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(LETL43)	AVE597-019(1A81) LVAP L-SPB - ALL ML SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN.
(LETR43)	AVE597-019(1A81) LVAP R-LRB - ALL ML SEALED	8.000	.000	1.550	.000	XMRP 976.0000 IN. XT
(LETI 1)	AVE597-019(1A81) LVAP INT VEH ALL ML SEALED	8.000	.000	1.550	.000	YMRP 400.0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

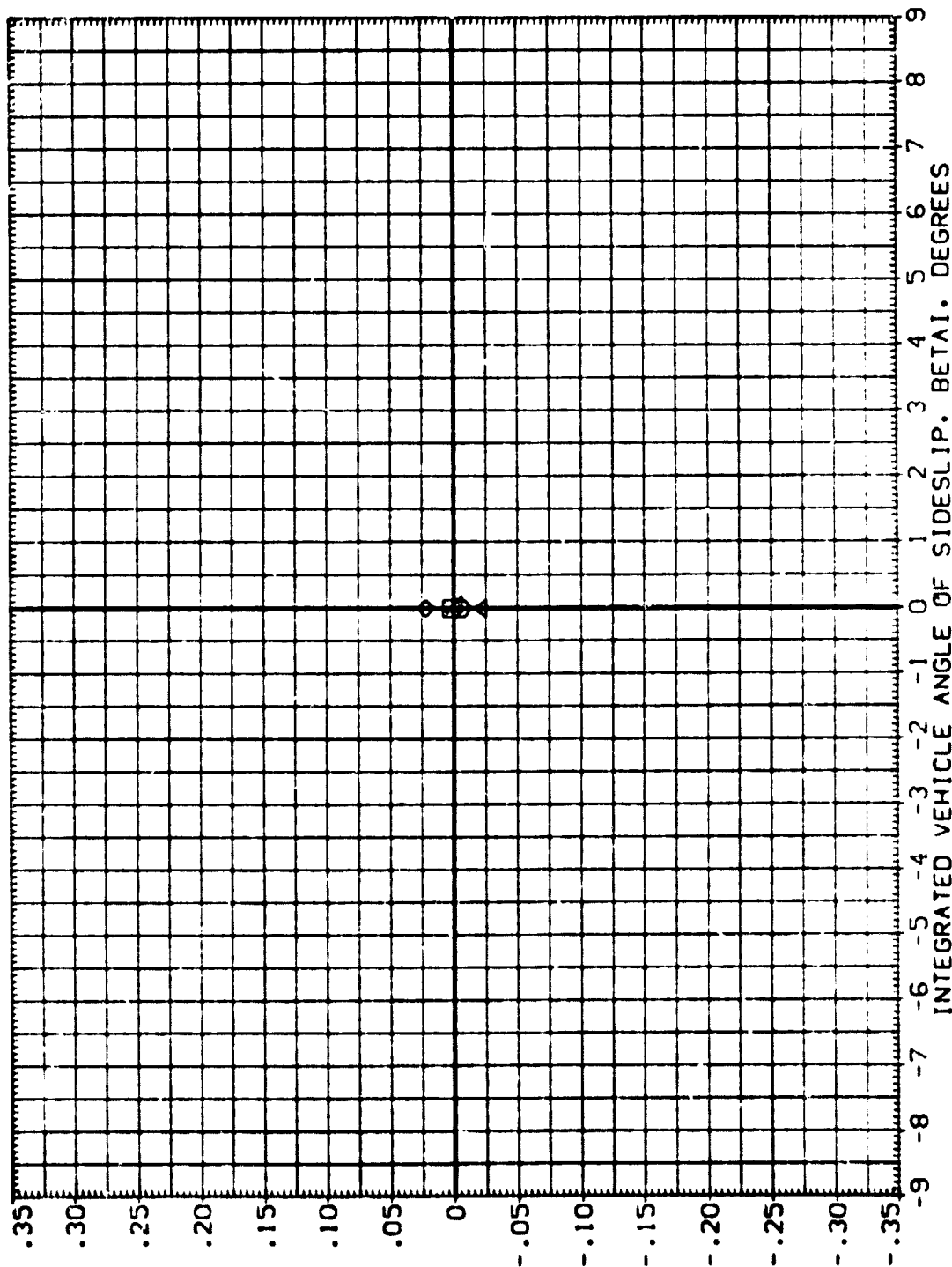


FIG. 19 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=1.55$ $DEV=8/0$
(E)ALPHA= 2.00

REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LE1043)	ANE597-019(IAB1) LVAP ORBITTER-ALL ML SEALED	8.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LE1143)	ANE597-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(LE1243)	ANE597-019(IAB1) LVAP L-SRB - ALL ML SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN.
(LE1343)	ANE597-019(IAB1) LVAP R-LRB - ALL ML SEALED	8.000	.000	1.550	.000	XMRP 976.0000 IN. XT
(LE1443)	ANE597-019(IAB1) LVAP INT VEH ALL ML SEALED	8.000	.000	1.550	.000	YMRP 400.0000 IN. YT
						ZMRP .0300 SCALE

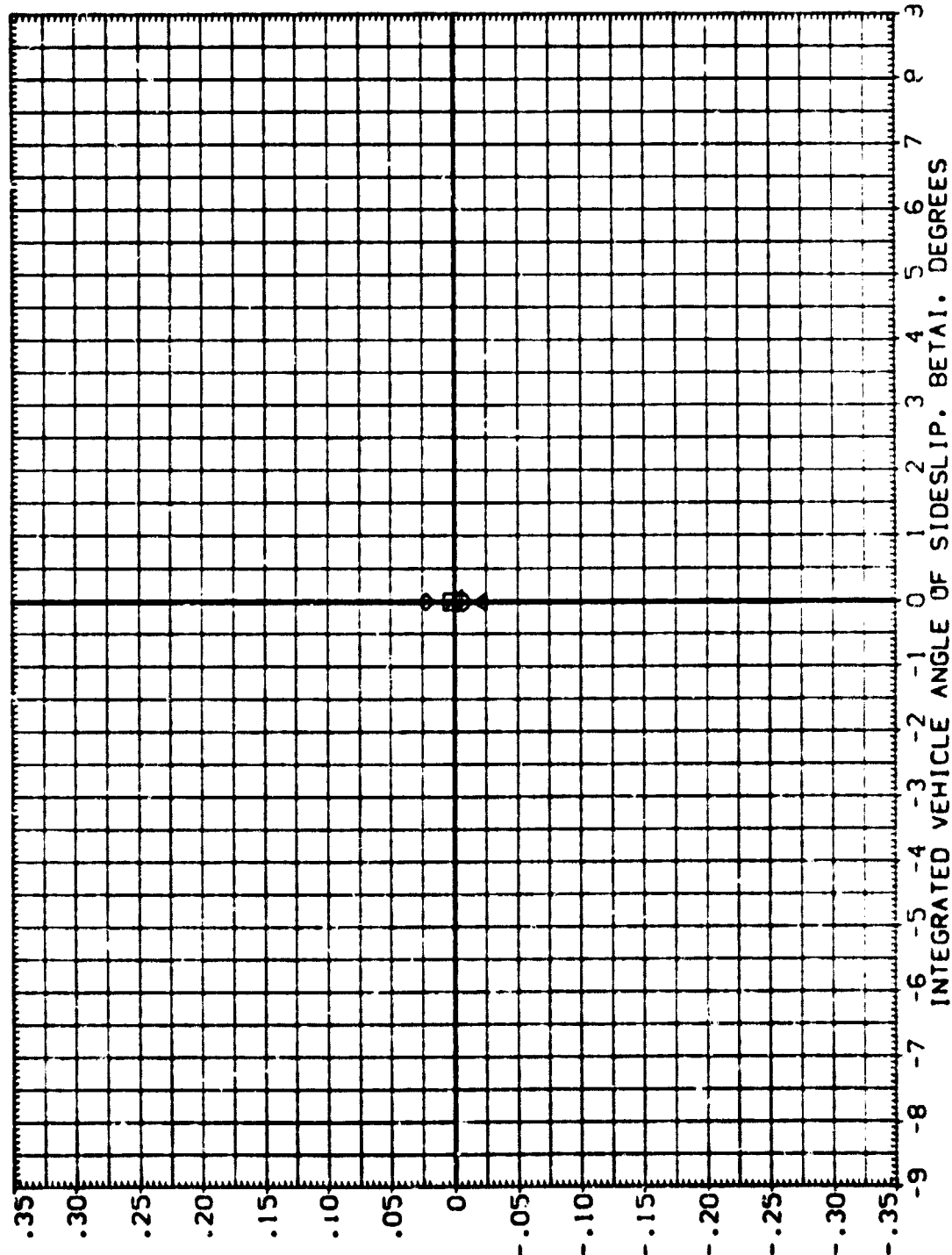


FIG. 19 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0
(E)ALPHA= 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(LEFT43)	AME597-019(1A81) LVAP ORBITER-ALL ML SEALED	8.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LEFT43)	AME597-019(1A81) LVAP TANK - ALL ML SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(LEFT43)	AME597-019(1A81) LVAP L-CRB - ALL ML SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN.
(LEFT43)	AME597-019(1A81) LVAP R-LRB ALL ML SEALED	8.000	.000	1.550	.000	YMRP 976.0000 IN.
(LEFT43)	AME597-019(1A81) LVAP INT VEH ALL ML SEALED	8.000	.000	1.550	.000	ZMRP 400.0000 IN.
						SCALE .0300

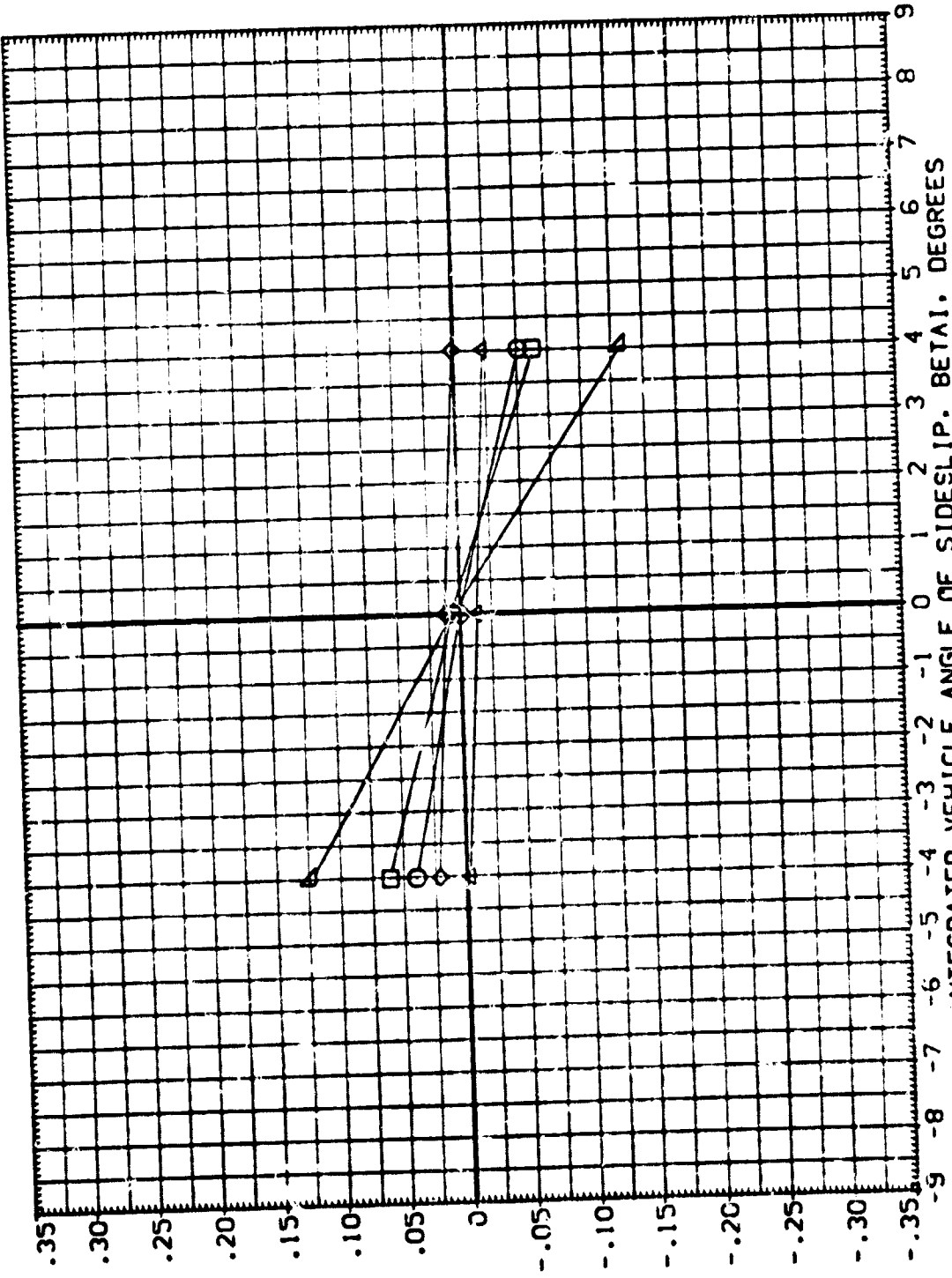


FIG. 19 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0
 (F)ALPHA1= 4.00
 PAGE 396

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(LETO43)	AMES97-0191(TAB1) LVAP ORBITER-ALL HL SEALED	8.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LETT43)	AMES97-0191(TAB1) LVAP TANK - ALL HL SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(LETT43)	AMES97-0191(TAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN.
(LETT43)	AMES97-0191(TAB1) LVAP R-LPB - ALL HL SEALED	8.000	.000	1.550	.000	XMRP 976.0000 IN.
(LETT43)	AMES97-0191(TAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	1.550	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

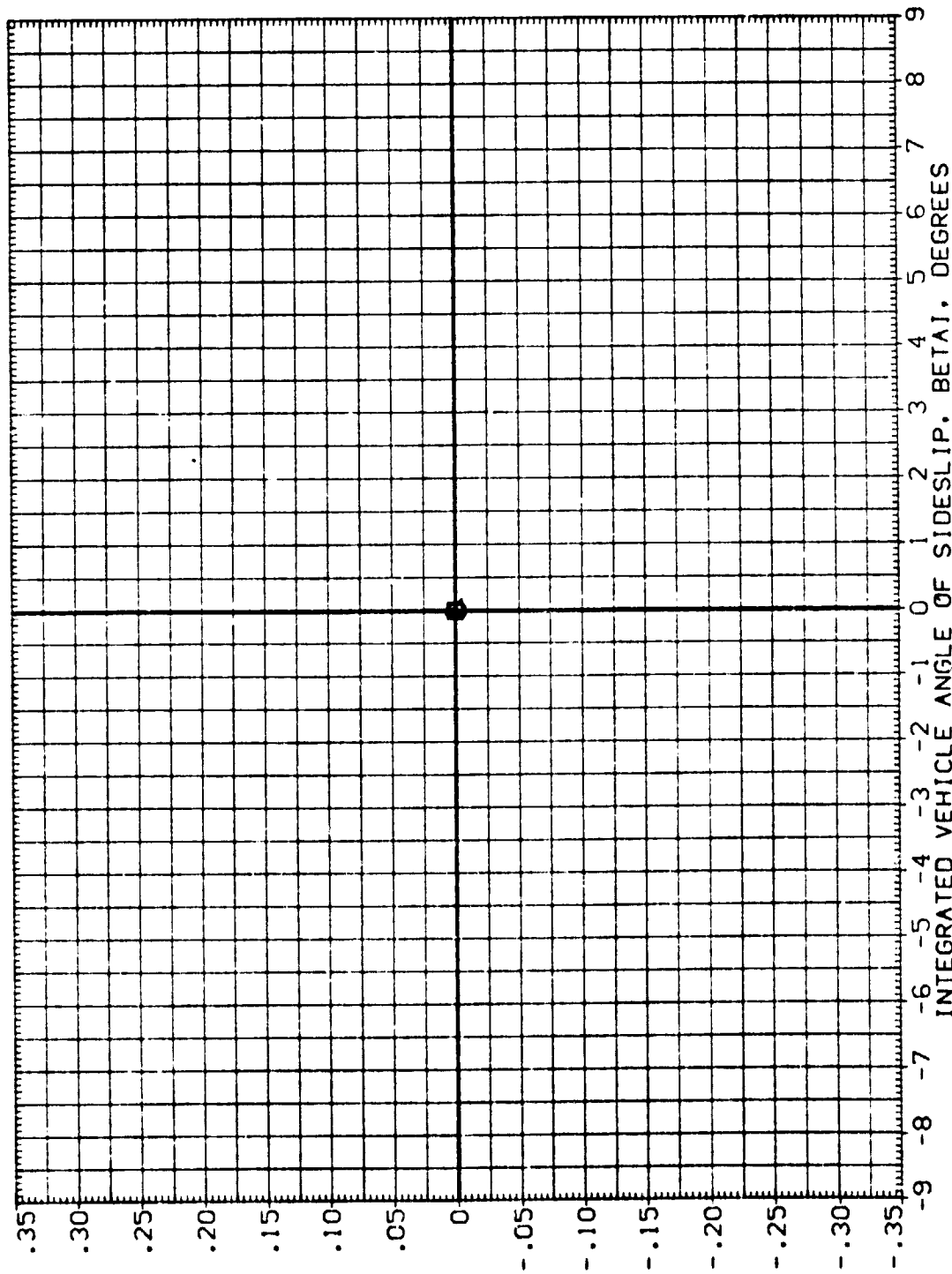


FIG. 19 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=1.55$ DEV=8/0
 (G)ALPHA= 6.00 PAGE 399

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LE1043)	AMES97-019(TAB1) LVAP ORBITER-ALL HL SEALED	8.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LE1143)	AMES97-019(TAB1) LVAP TANK - ALL HL SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(LE1243)	AMES97-019(TAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN.
(LE1343)	AMES97-019(TAB1) LVAP R-LRB - ALL HL SEALED	8.000	.000	1.550	.000	XMRP 976.0000 IN. XT
(LE1443)	AMES97-019(TAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	1.550	.000	YMRP 400.0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

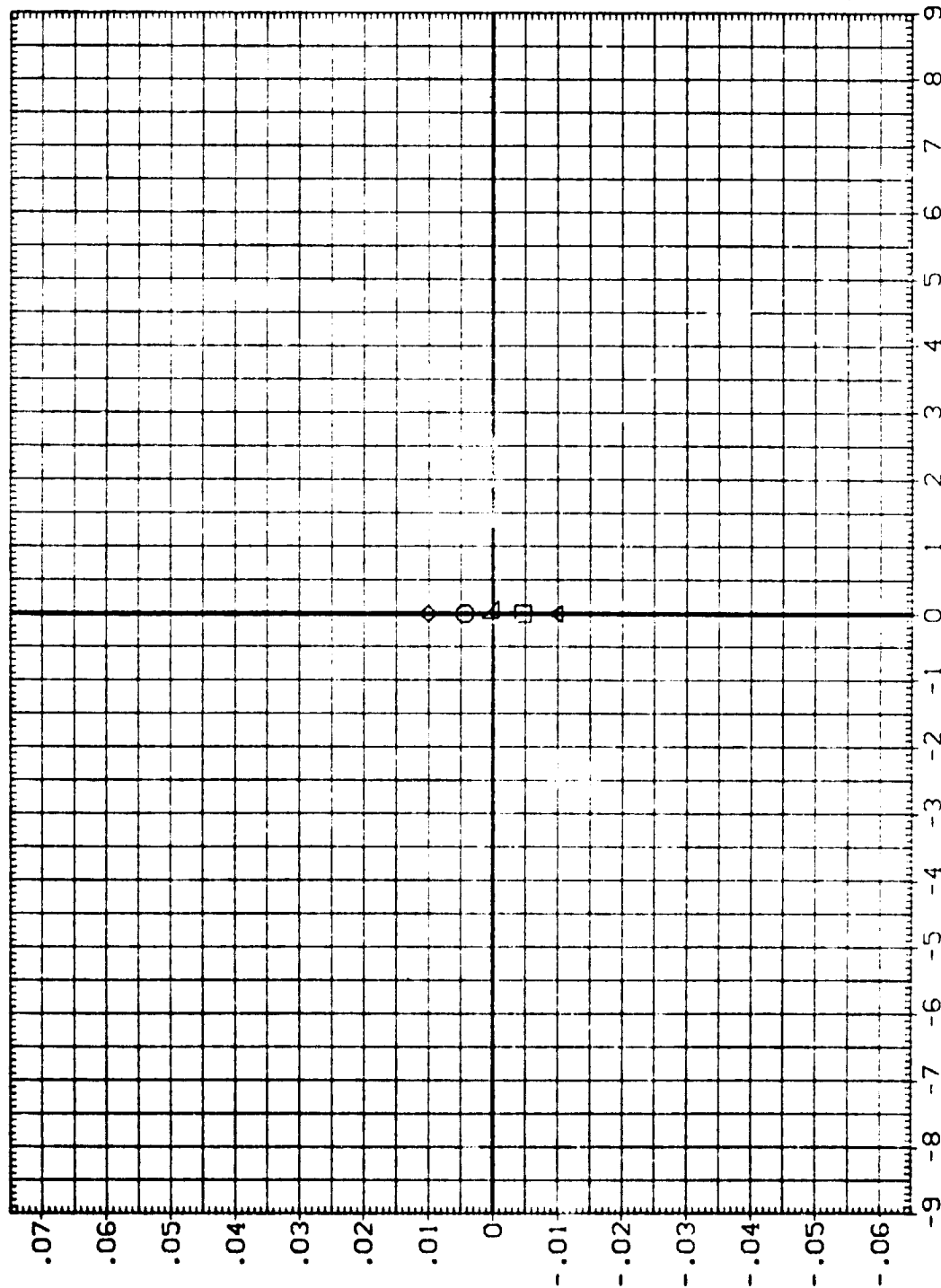
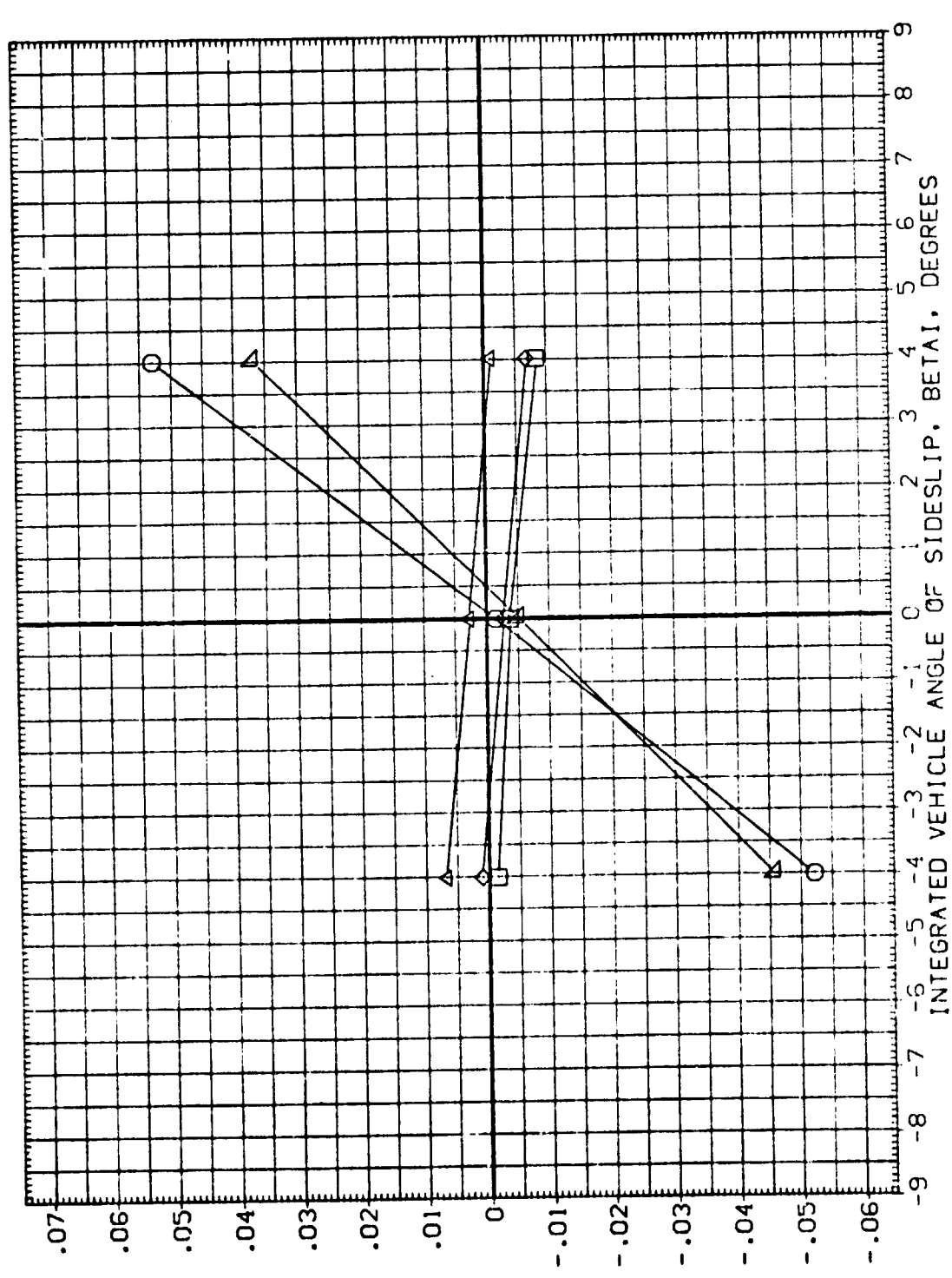


FIG. 19 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0

(A) ALPHA = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-TB	ELV-OB	MACH	SPOBRK	REFERENCE INFORMATION
(LETO43)	AMES97-019(IAB1) LVAP ORBITTER-ALL HL SEALED	8.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LETT43)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(LETL43)	AMES97-019(IAB1) LVAP L SRB - ALL HL SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN.
(LETR43)	AMES97-019(IAB1) LVAP P-LRB ALL HL SEALED	8.000	.000	1.550	.000	XMRP 976.0000 IN. XT
(LETT43)	AMES97-019(IAB1) LVAP INT VEM ALL HL SEALED	8.000	.000	1.550	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300



FOREBODY YAWING MOMENT COEFFICIENT, CYNF

FIG. 19 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LETO43)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LETT43)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(LETL43)	AMES97-019(IAB1) LVAP L-SPB - ALL HL SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN.
(LETR43)	AMES97-019(IAB1) LVAP R-LPB ALL HL SEALED	8.000	.000	1.550	.000	YMRP .0000 IN.
(LETI43)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	1.550	.000	ZMRP 400.0000 IN.
						SCALE .0300

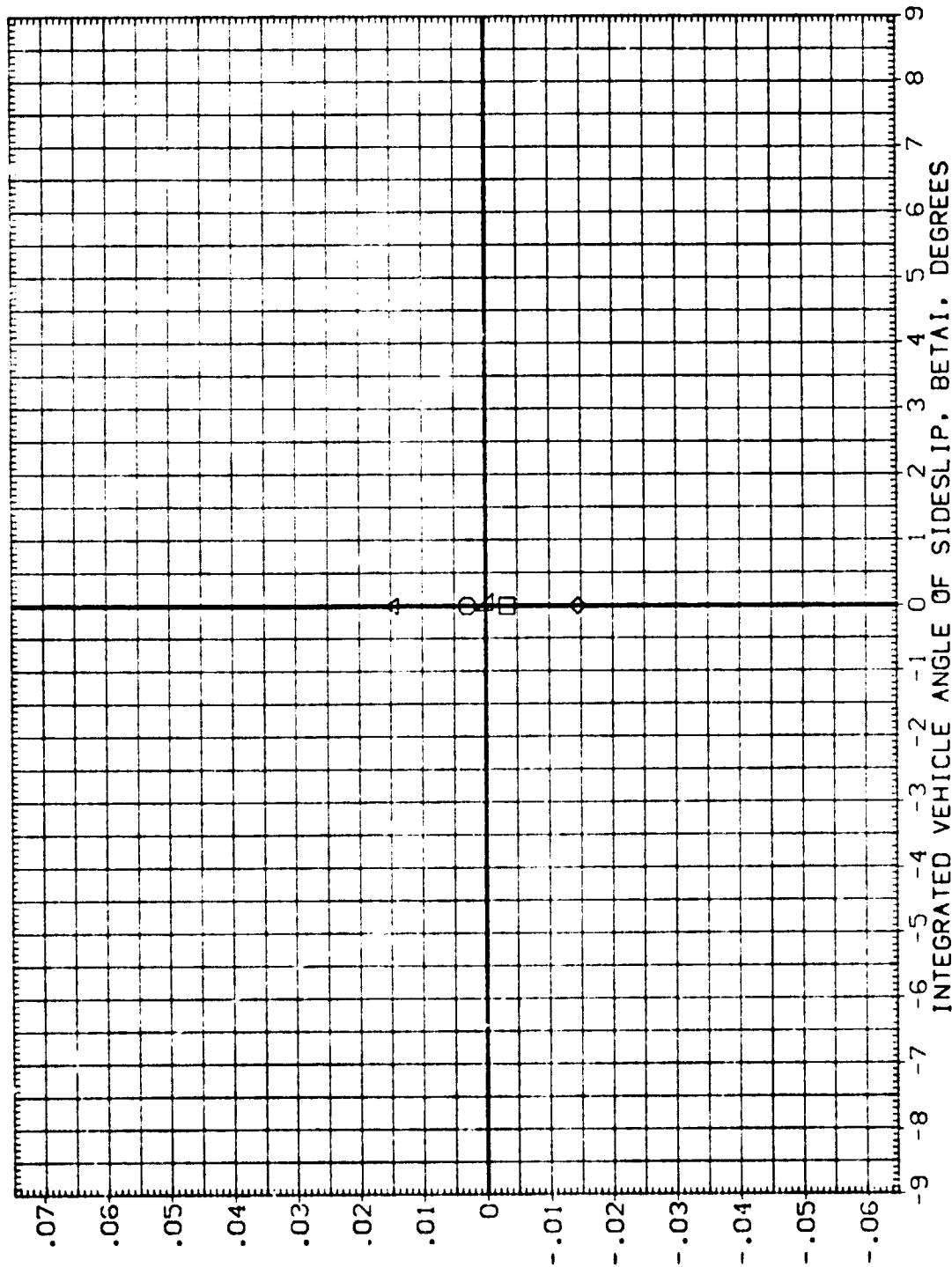


FIG. 19 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0

(C) ALPHA = -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LETO43)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	.000	1.550	.000	SREF 2690.0000 50.FT.
(LETT43)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(LETT43)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN. XT
(LETT43)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	.000	1.550	.000	XMRP 976.0000 IN. YT
(LETT43)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	1.550	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

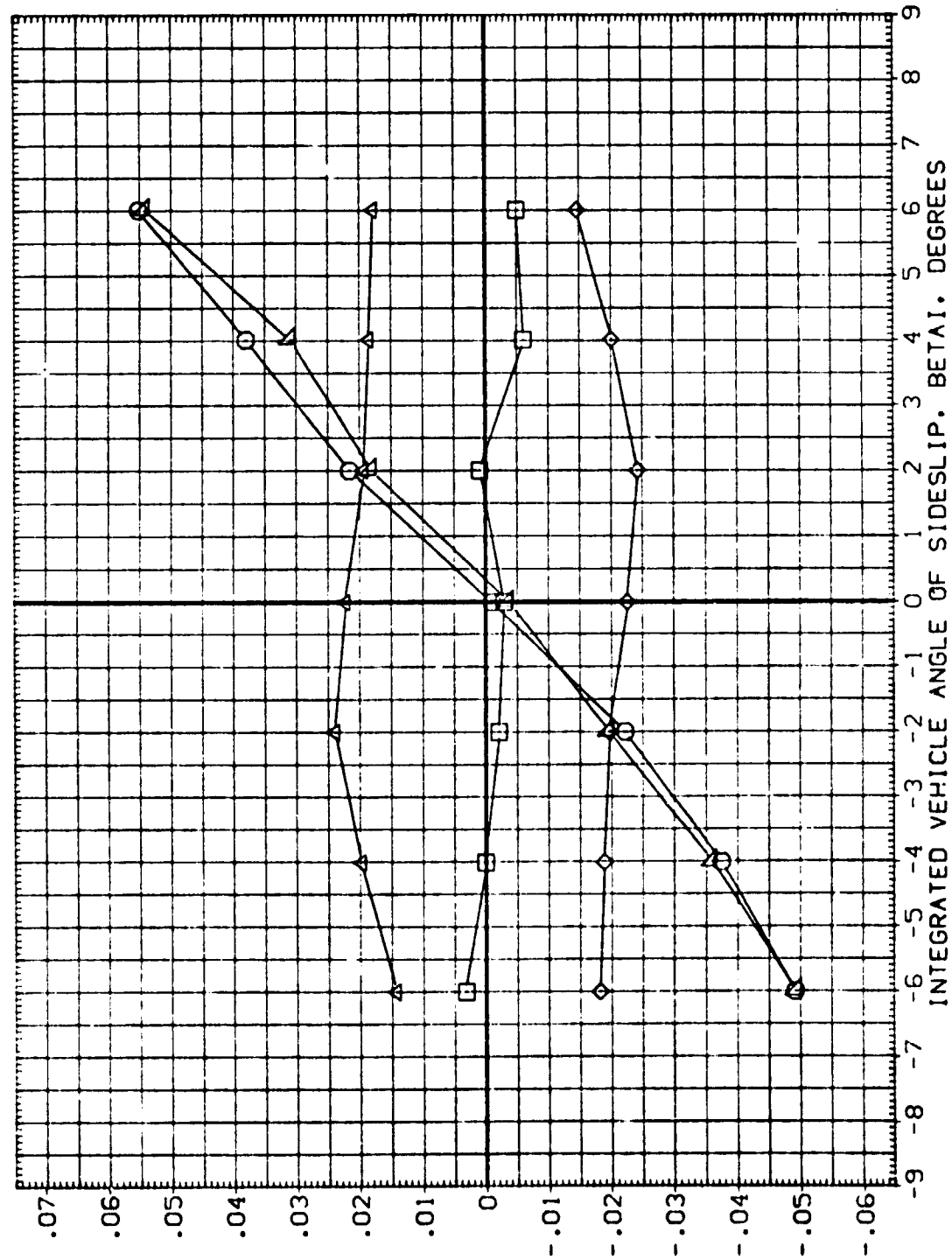


FIG. 19 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0

(D)ALPHA1 = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	CPDBRK	REFERENCE INFORMATION
(LET043)	AMES97-019(IAB1) LVAP	8.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LET143)	AMES97-019(IAB1) LVAP	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(LET143)	AMES97-019(IAB1) LVAP	8.000	.000	1.550	.000	BREF 1297.0000 IN.
(LET143)	AMES97-019(IAB1) LVAP	8.000	.000	1.550	.000	XMRP 976.0000 IN. XT
(LET143)	AMES97-019(IAB1) LVAP	8.000	.000	1.550	.000	YMRP 400.0000 IN. YT
(LET143)	AMES97-019(IAB1) LVAP	8.000	.000	1.550	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

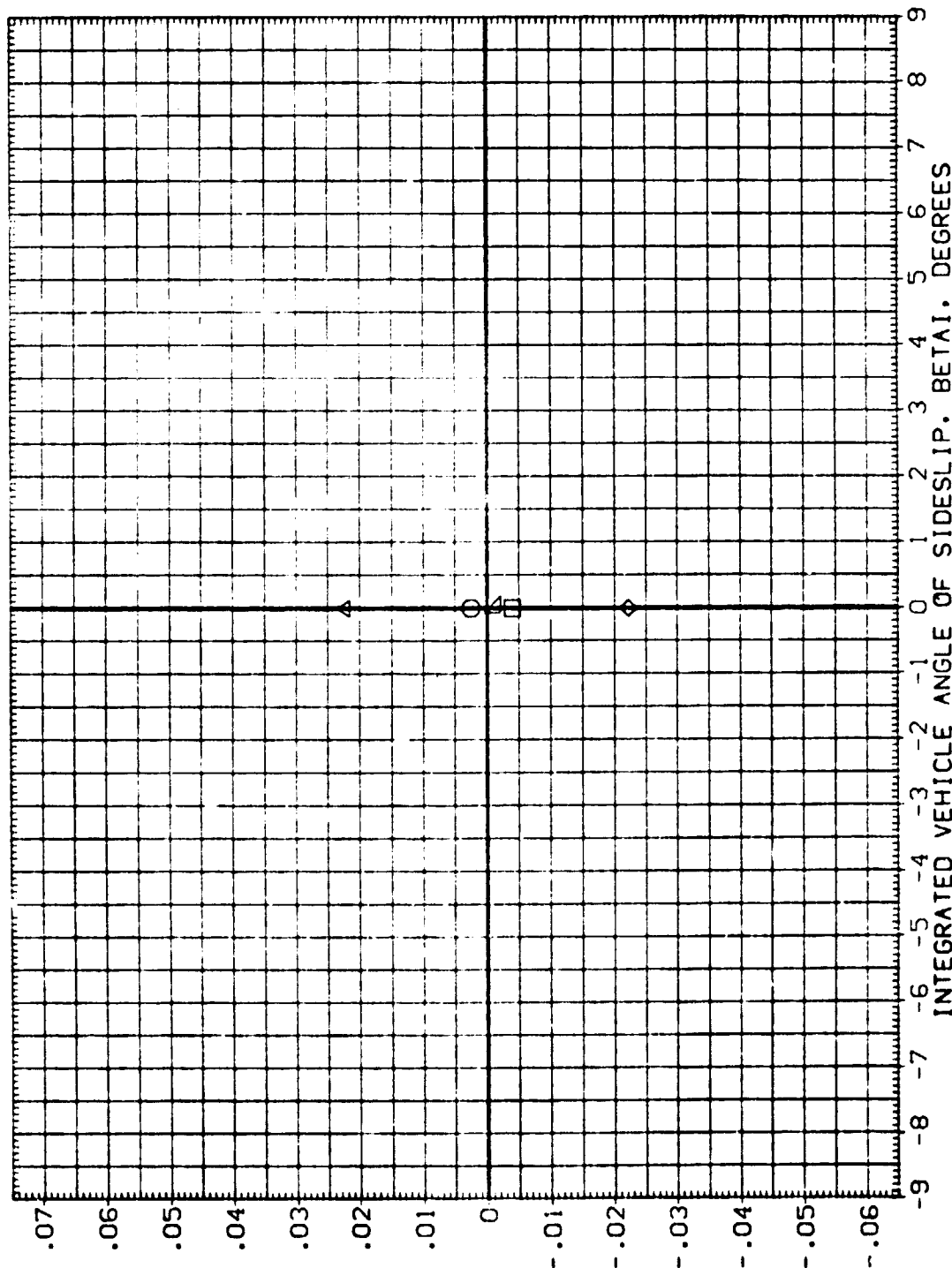
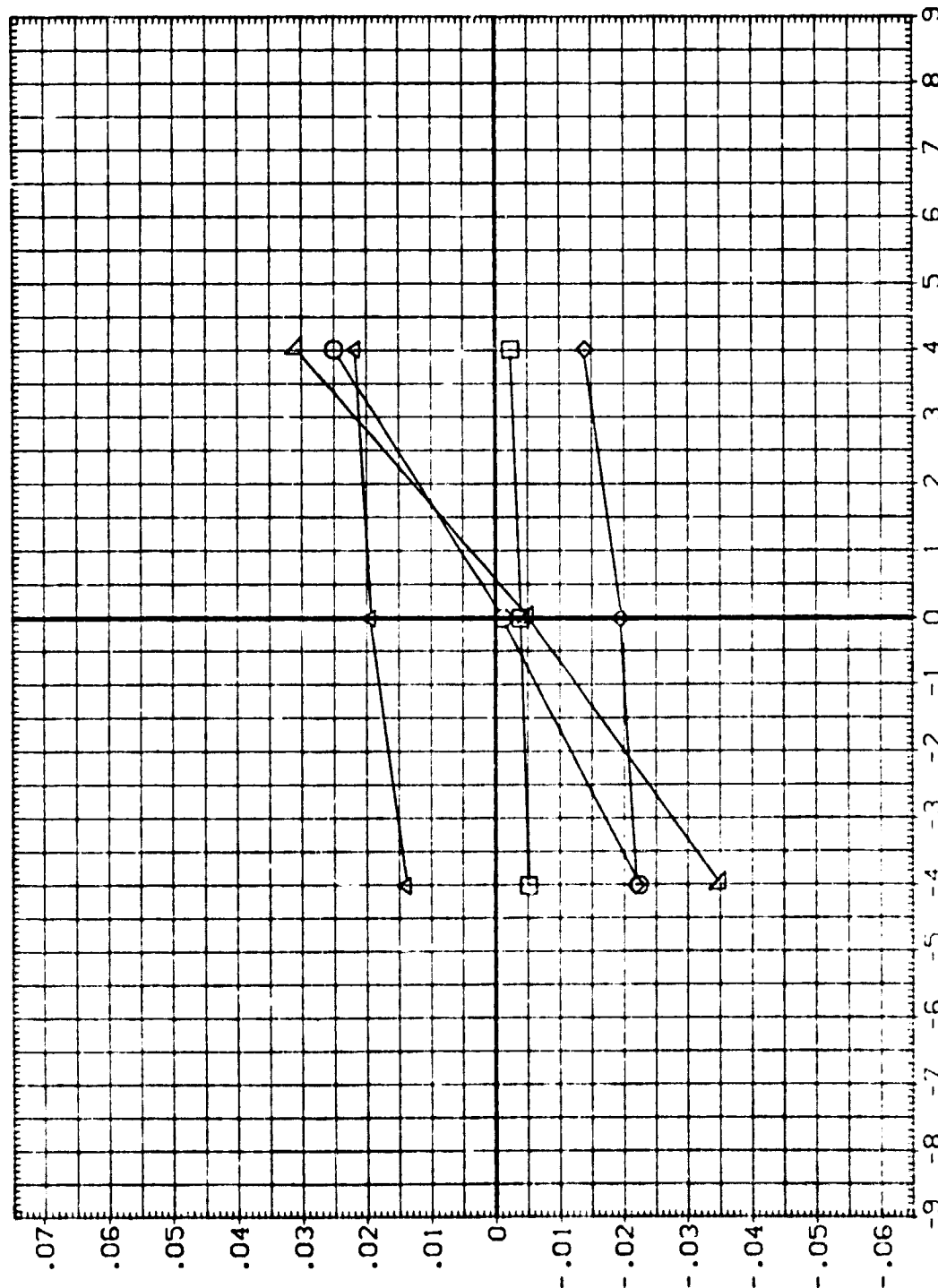


FIG. 19 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=1.55$ $DEV=8/0$

(E)ALPHA= 2.00

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPOBRK	REFERENCE INFORMATION
(LET043)	□	AMES97-019(1A1) LVAP ORBITTER-ALL HL SEALED	8.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LET143)	○	AMES97-019(1A1) LVAP TANK - ALL HL SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(LET143)	×	AMES97-019(1A1) LVAP L-ORB - ALL HL SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN.
(LET143)	△	AMES97-019(1A1) LVAP R-ORB - ALL HL SEALED	8.000	.000	1.550	.000	XMRP 976.0000 IN.
(LET143)	▽	AMES97-019(1A1) LVAP IN. VEH ALL HL SEALED	8.000	.000	1.550	.000	YMRP .0000 IN.
							ZMRP 400.0000 IN.
							SCALE .0300



FOREBODY YAWING MOMENT COEFFICIENT, CYNF

FIG. 19 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0

DATA SET SYMBOL: (LETO43), (LETL43), (LETL43), (LETL43), (LETL43)

CONFIGURATION DESCRIPTION: ARES97-019(IAB1) LVAP ORBITER-ALL HL SEALED, ARES97-019(IAB1) LVAP TANK - ALL HL SEALED, ARES97-019(IAB1) LVAP -SRB - ALL HL SEALED, ARES97-019(IAB1) LVAP R-LRB ALL HL SEALED, ARES97-019(IAB1) LVAP INT VEH ALL HL SEALED

ELV-1B: 8.000, 8.000, 8.000, 8.000, 8.000

ELV-08: .000, .000, .000, .000, .000

MACH: 1.550, 1.550, 1.550, 1.550, 1.550

SPDRBK: .000, .000, .000, .000, .000

REFERENCE INFORMATION: SREF 2690.0000 SQ.FT., LREF 1297.0000 IN., BREF 1297.0000 IN., XMRP 376.0000 IN., YMRP 400.0000 IN., ZMRP 400.0000 IN., SCALE .0300

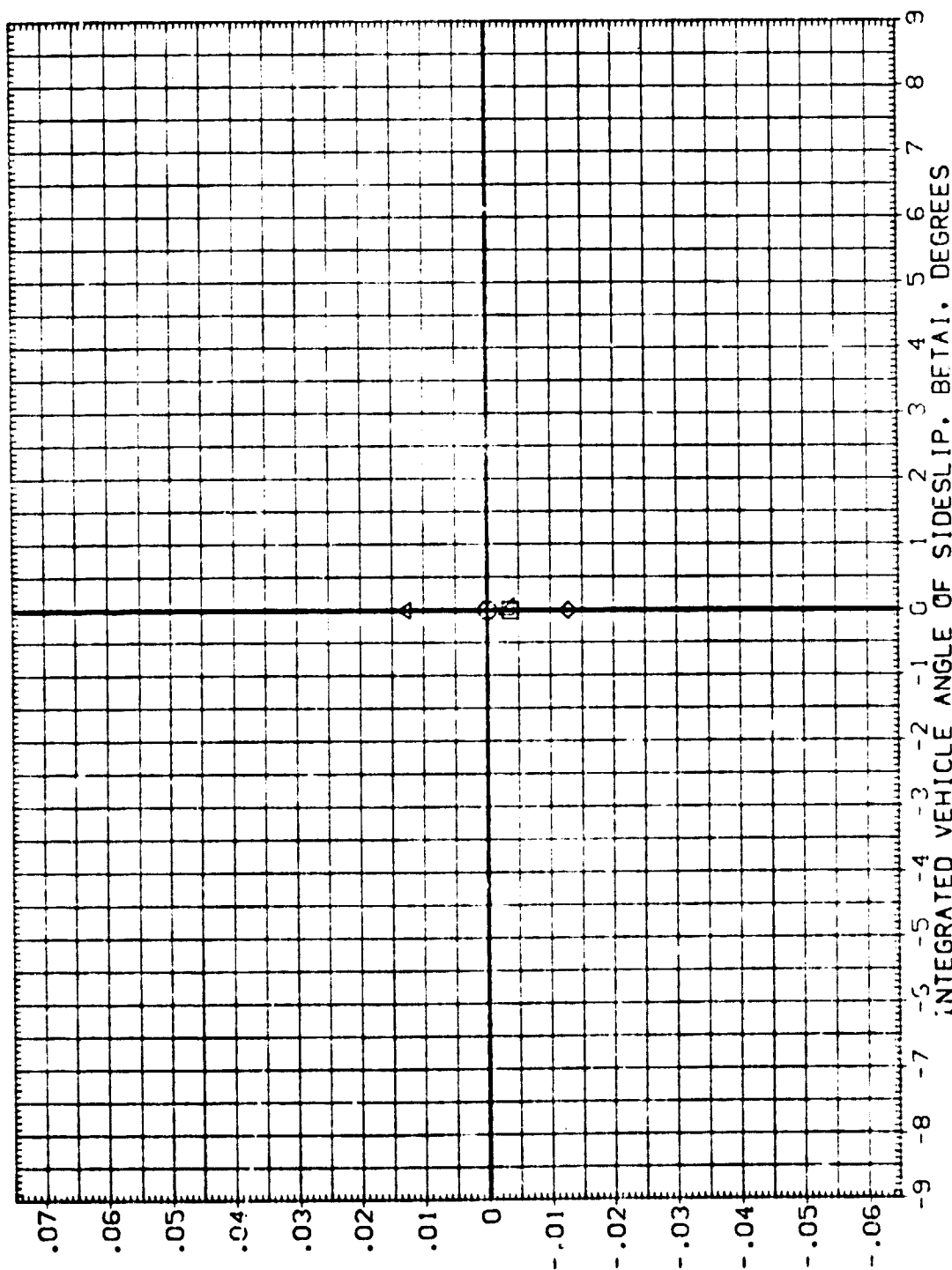


FIG. 19 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LETO43)	AMES97-0191(A81) LVAP CRB:TER-ALL HL SEALED	8.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LETT43)	AMES97-0191(A81) LVAP TANK - ALL HL SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(LETT43)	AMES97-0191(A81) LVAP L-SRB - ALL HL SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN.
(LETT43)	AMES97-0191(A81) LVAP R-LPB ALL HL SEALED	8.000	.000	1.550	.000	YMRP 976.0000 IN. XT
(LETT43)	AMES97-0191(A81) LVAP INT VEH ALL HL SEALED	8.000	.000	1.550	.000	YMRP 400.0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

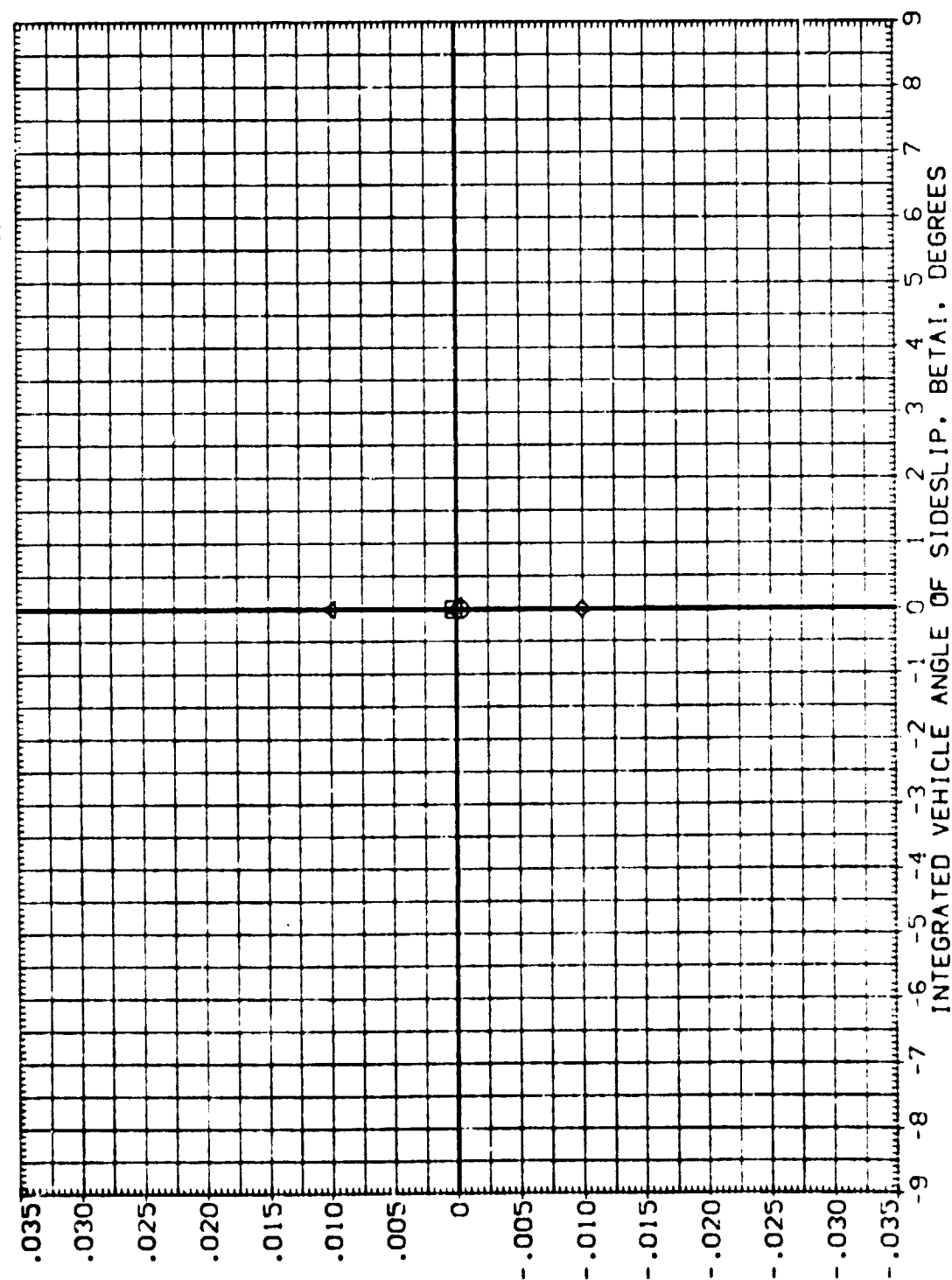


FIG. 19 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0
(A) ALPHA = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-09	MACH	SPDRK	REFERENCE INFORMATION
(LE1043)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LE1143)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(LE143)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN.
(LE143)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	.000	1.550	.000	YMRP 976.0000 IN.
(LE143)	AMES97-019(IAB1) LVAP INT VEM ALL HL SEALED	8.000	.000	1.550	.000	ZMRP 400.0000 IN.
(LE143)						SCALE .0300

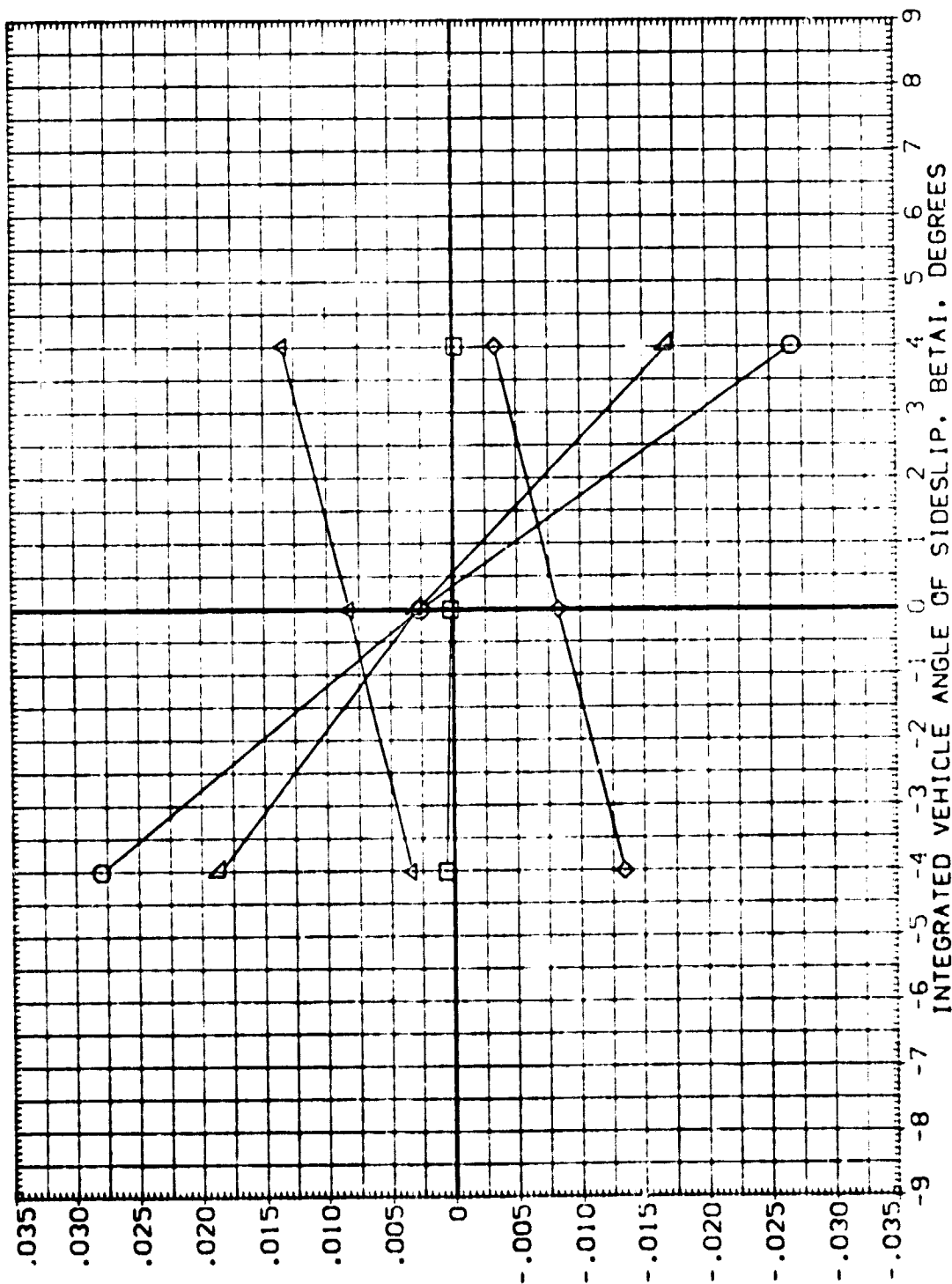


FIG. 19 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS. M=1.55 DEV=8/0

(B) ALPHA = -4.00

ATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDRK	REFERENCE INFORMATION
(LE1043)	AME597-019(1AB1) LVAP ORGATER-ALL ML SEALED	8.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LE1143)	AME597-019(1AB1) LVAP TANK - ALL ML SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(LE1243)	AME597-019(1AB1) LVAP L-SPB - ALL ML SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN.
(LE1343)	AME597-019(1AB1) LVAP R-SPB - ALL ML SEALED	8.000	.000	1.550	.000	XMRP 976.0000 IN.
(LE1443)	AME597-019(1AB1) LVAP INT VEH ALL ML SEALED	8.000	.000	1.550	.000	YMRP 400.0000 IN.
(LE1543)	AME597-019(1AB1) LVAP INT VEH ALL ML SEALED	8.000	.000	1.550	.000	ZMRP 400.0000 IN.
						SCALE .0300

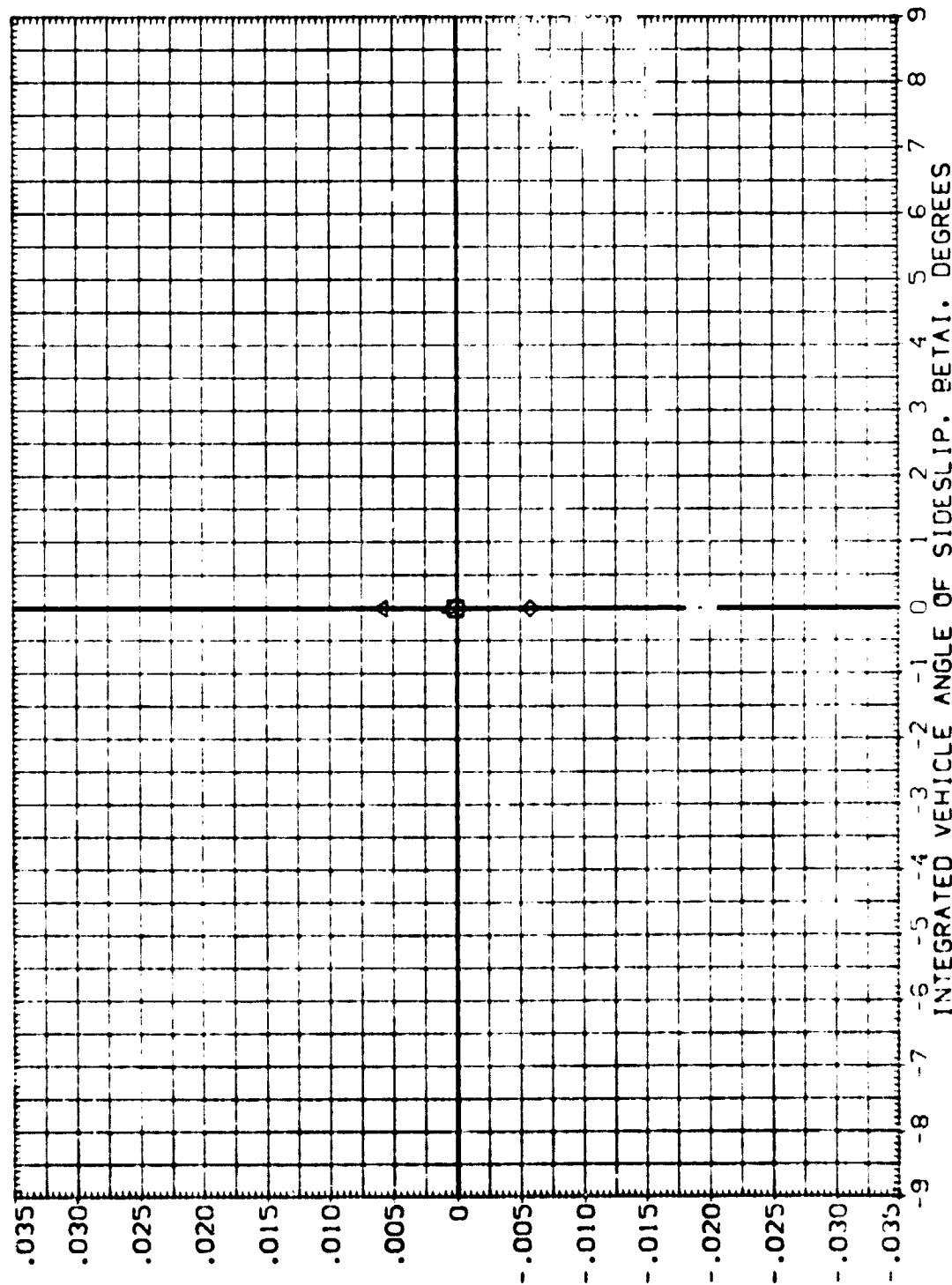
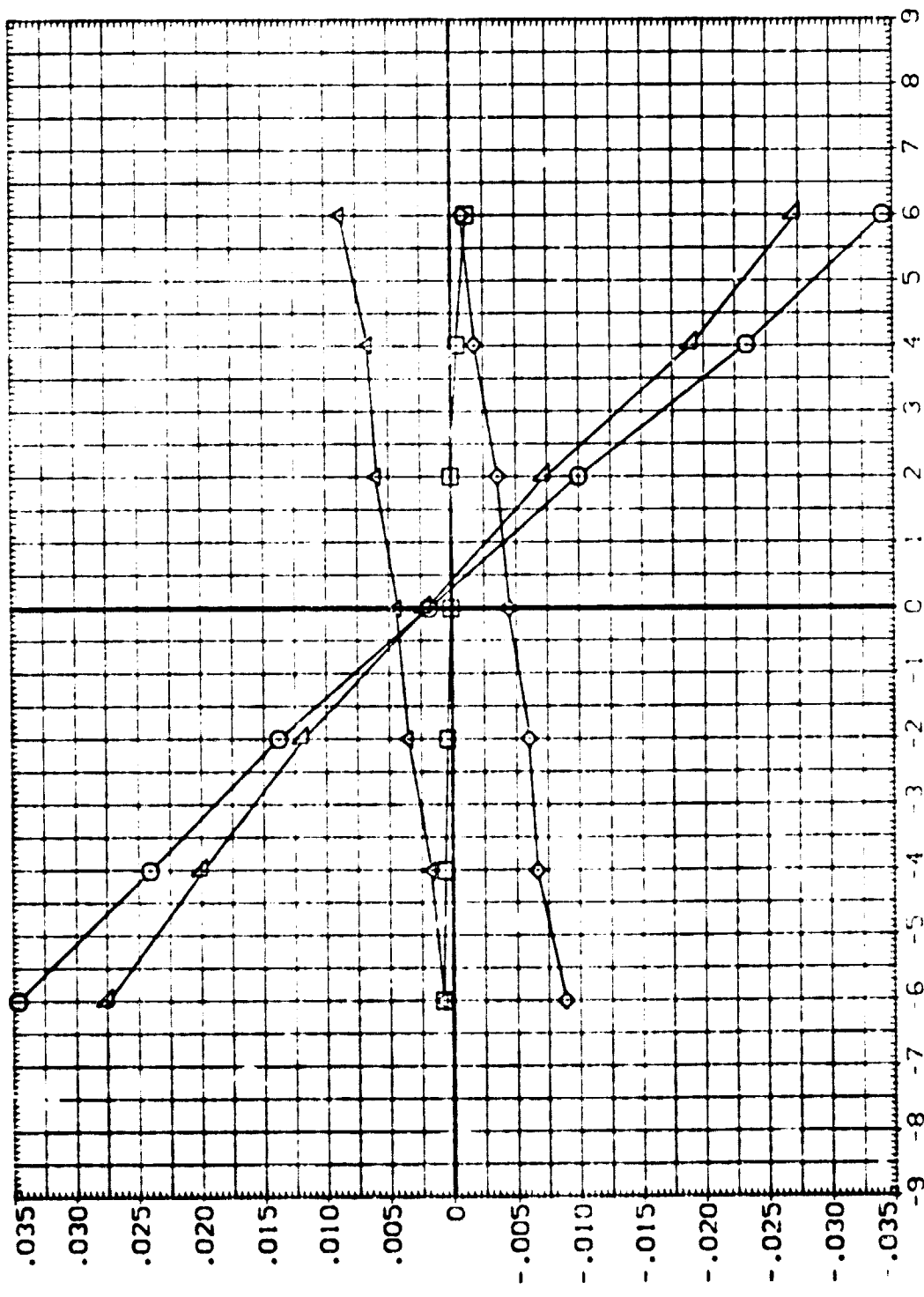


FIG. 19 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0

(C) ALPHA = -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-CB	MACH	SPDBRK	REFERENCE INFORMATION
(LET043)	AME597-019(1AB1) LVAP	8.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LET143)	AME597-019(1AB1) LVAP	8.000	.000	1.550	.000	SREF 1297.0000 IN.
(LET143)	AME597-019(1AB1) LVAP	8.000	.000	1.550	.000	SREF 1297.0000 IN.
(LET143)	AME597-019(1AB1) LVAP	8.000	.000	1.550	.000	AMRP 976.0000 IN. XT
(LET143)	AME597-019(1AB1) LVAP	8.000	.000	1.550	.000	AMRP 400.0000 IN. YT
(LET143)	AME597-019(1AB1) LVAP	8.000	.000	1.550	.000	AMRP 400.0000 IN. ZT
						SCALE .0300



ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

FIG. 19 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0
(D)ALPHA= .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-2B	MACH	SPDBRK	REFERENCE INFORMATION
(LET043)	AME597-019(1A81) LVAP	8.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LET143)	AME597-019(1A81) LVAP	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(LET143)	AME597-019(1A81) LVAP	8.000	.000	1.550	.000	BREF 1297.0000 IN.
(LET143)	AME597-019(1A81) LVAP	8.000	.000	1.550	.000	XMRP 976.0000 IN.
(LET143)	AME597-019(1A81) LVAP	8.000	.000	1.550	.000	YMRP .0000 IN.
(LET143)	AME597-019(1A81) LVAP	8.000	.000	1.550	.000	ZMRP 400.0000 IN.
						SCALE .0300

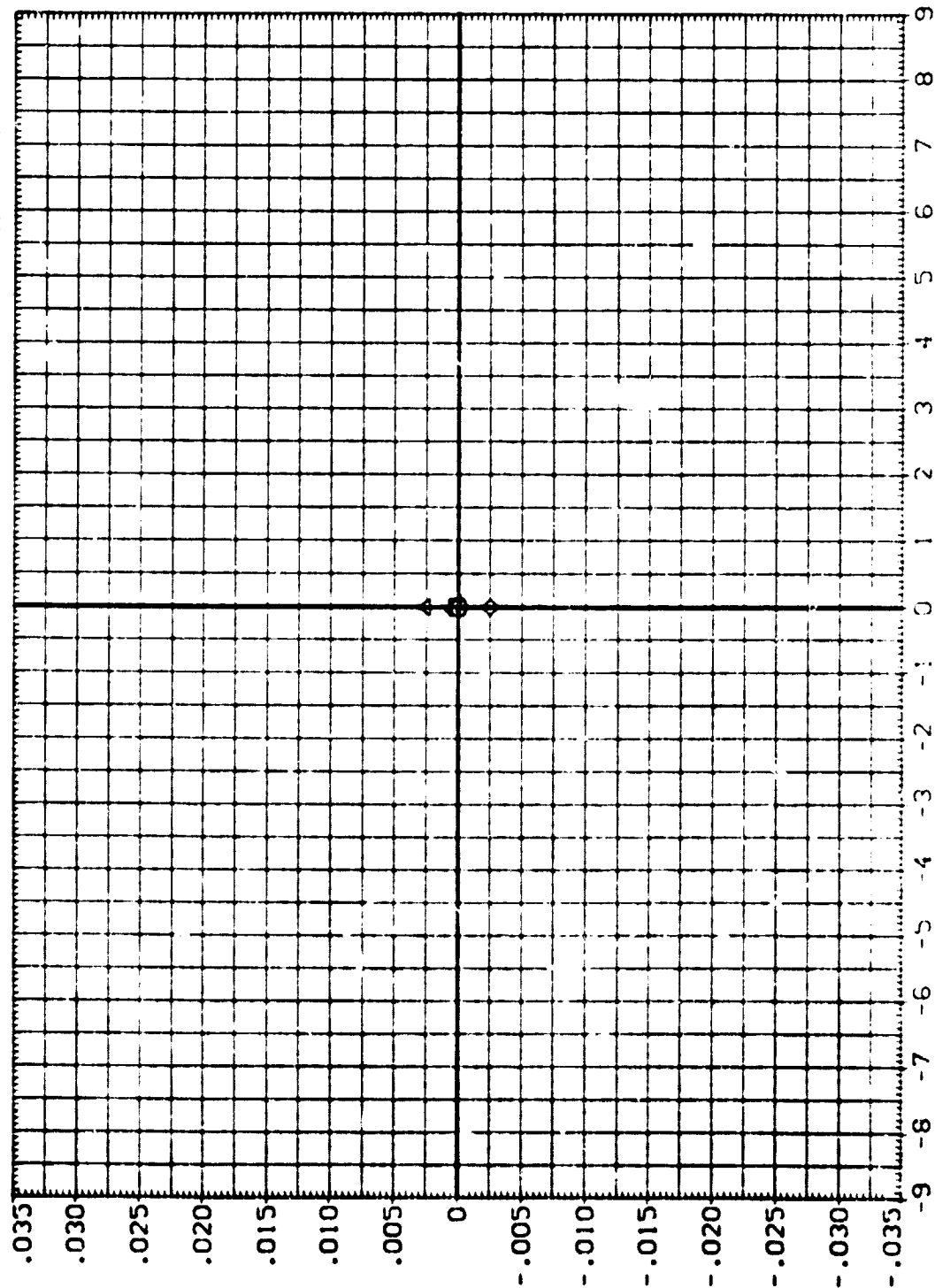


FIG. 19 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=1.55$ $DEV=8/0$
 $(\Gamma)ALPHA=2.00$ PAGE 411

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LE1043)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LE1143)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(LE1L43)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN.
(LE1R43)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	.000	1.550	.000	XHRP 976.0000 IN. XT
(LE1143)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	1.550	.000	YHRP 400.0000 IN. YT
						ZHRP 400.0000 IN. ZT
						SCALE .0300

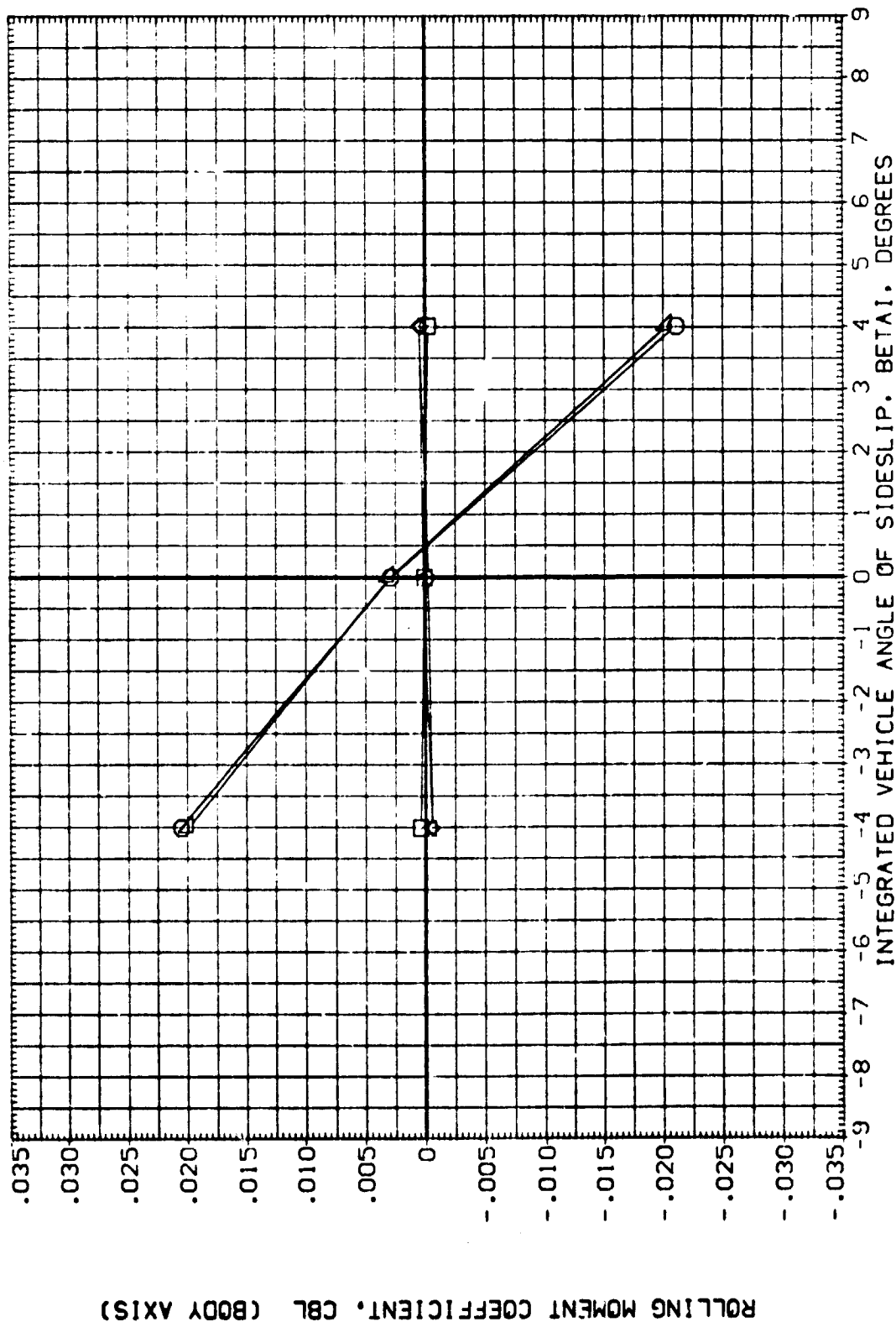
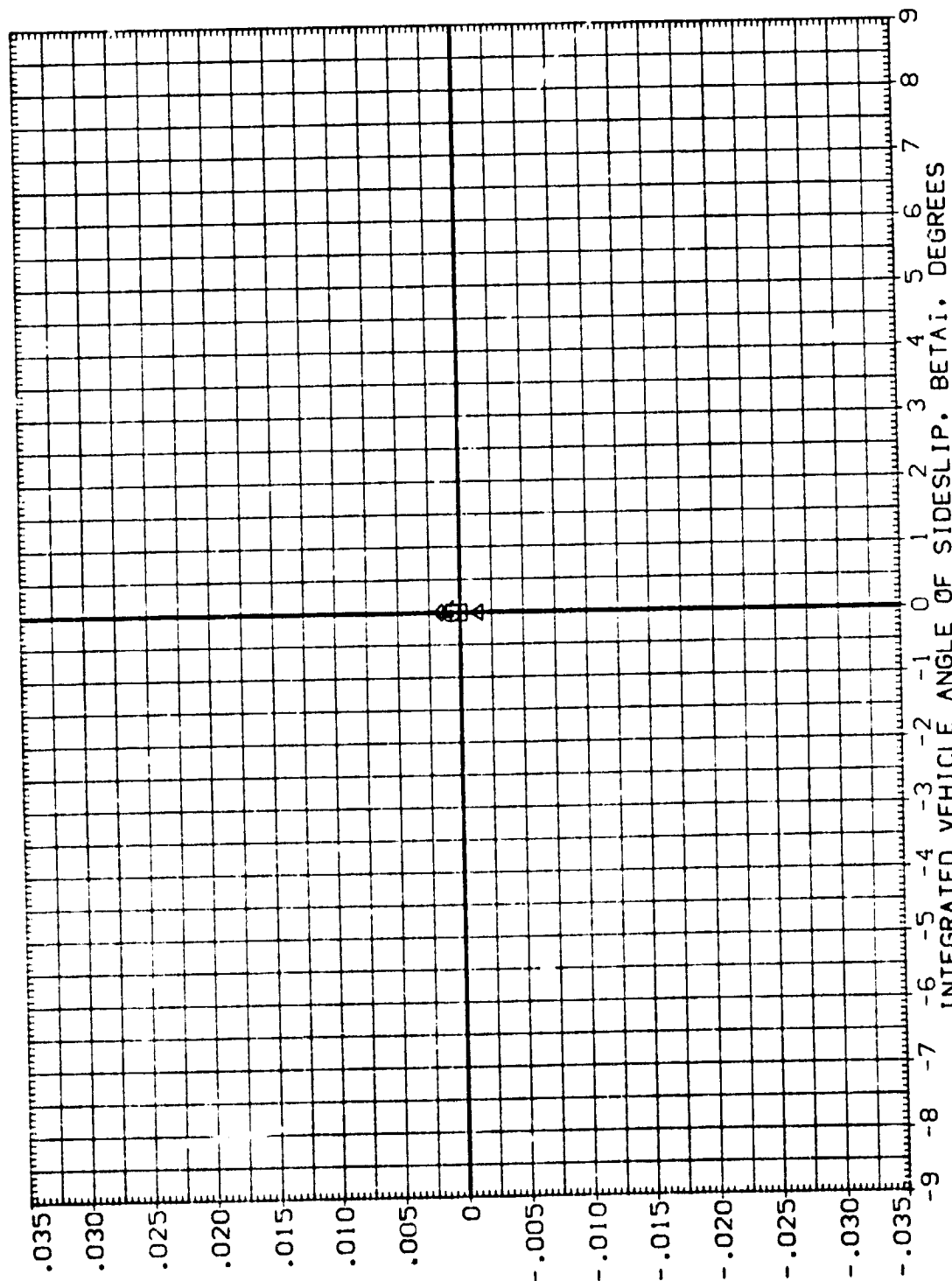


FIG. 19 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=1.55$ $DEV=8/0$

(F) ALPHA I = 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LETO43)	AMES97-019(IAB1) LVAP QPB1TER-ALL HL SEALED	8.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LETT43)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(LETL43)	AMES97-019(IAB1) LVAP LSRB - ALL HL SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN.
(LEIR43)	AMES97-019(IAB1) LVAP P-LRB ALL HL SEALED	8.000	.000	1.550	.000	XMRP 976.0000 IN.
(LEI43)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	1.550	.000	YMRP .0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300



ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

FIG. 19 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LETO43)	AMES97-019C(1A81) LVAP ORBITER-ALL ML SEALED	8.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LETT43)	AMES97-019C(1A81) LVAP TANK - ALL ML SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(LETT43)	AMES97-019C(1A81) LVAP L-SRB - ALL ML SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN.
(LETT43)	AMES97-019C(1A81) LVAP R-LRB - ALL ML SEALED	8.000	.000	1.550	.000	YMRP 976.0000 IN.
(LETT43)	AMES97-019C(1A81) LVAP INT VEH ALL ML SEALED	8.000	.000	1.550	.000	ZMRP 400.0000 IN.
						SCALE .0300

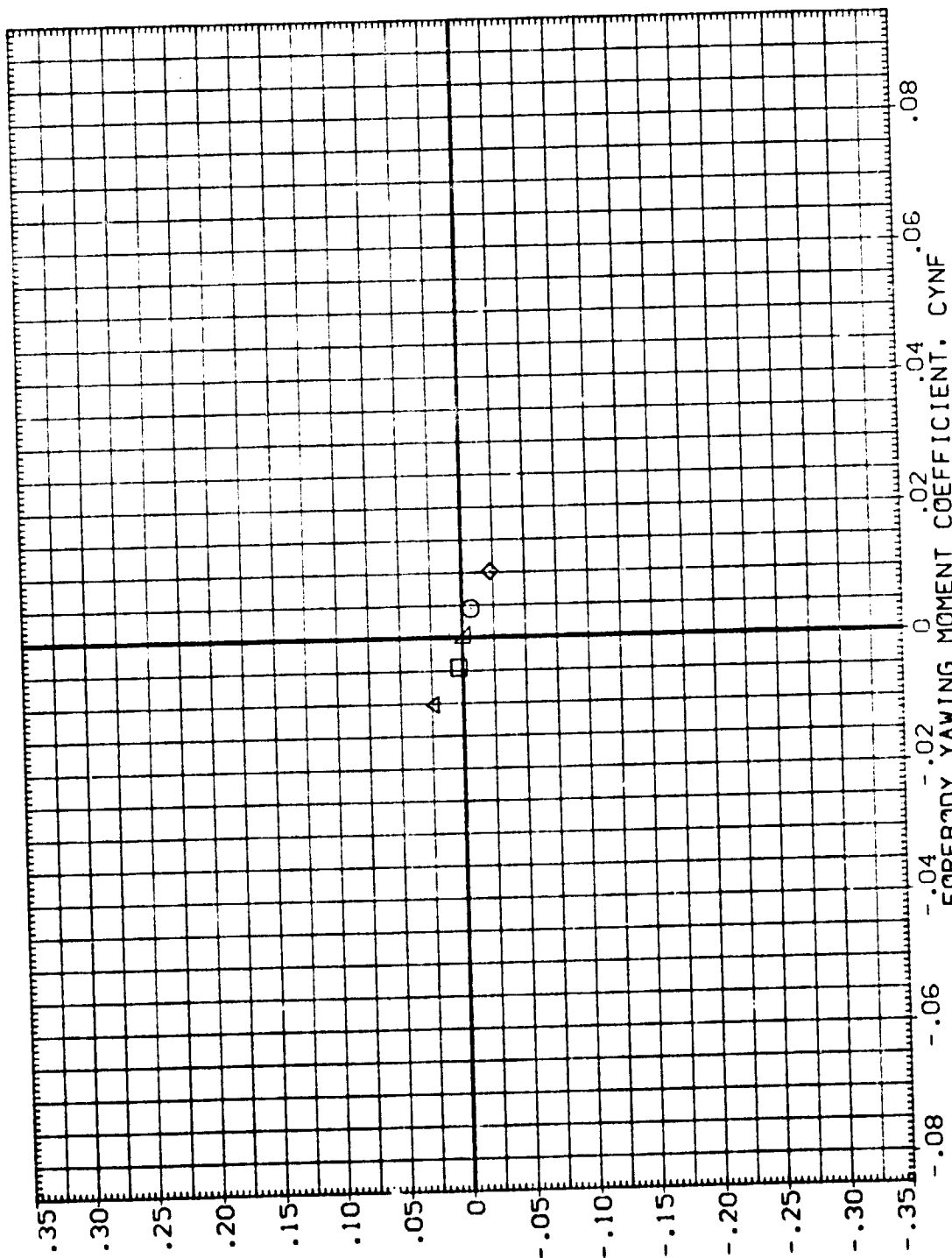


FIG. 19 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=1.55$ DEV=8/0

(A) ALPHA = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-3B	MACH	SPOBRK	REFERENCE INFORMATION
(LE1043)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LE1143)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(LE1243)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN.
(LE1343)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	.000	1.550	.000	XMRP 976.0000 IN.
(LE1443)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	1.550	.000	YMRP 400.0000 IN.
(LE1543)						ZMRP .0300
						SCALE

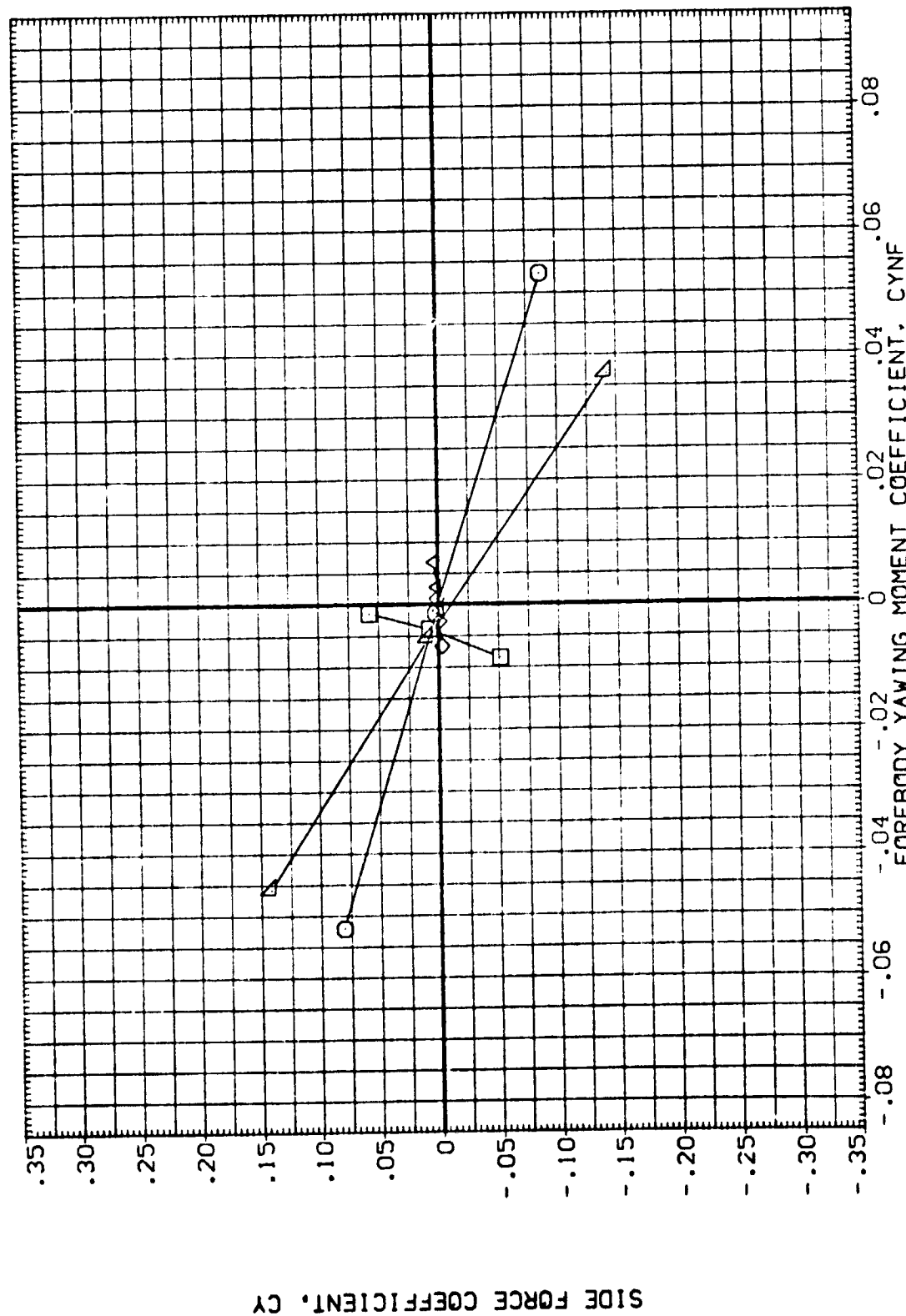


FIG. 19 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=1.55$ $DEV=8/0$
 (B) $\alpha_{PIA1} = -4.00$ PAGE 415

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-CB	MACH	SPOBRK	REFERENCE INFORMATION
(LETO43)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LETT43)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(LETL43)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN. XT
(LETR43)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	.000	1.550	.000	XMRP .976.0000 IN. YT
(LETI43)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	1.550	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

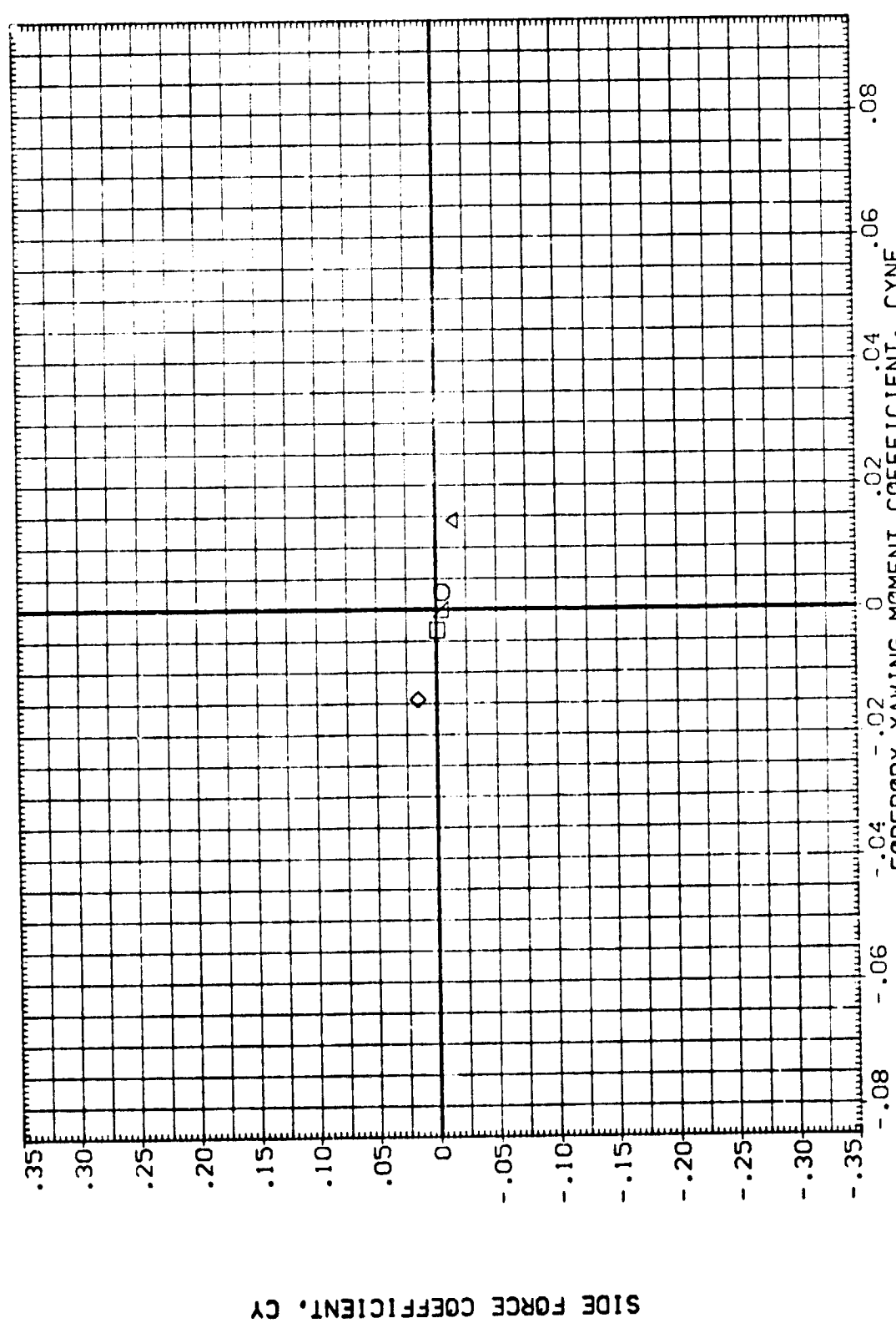


FIG. 19 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0
(C)ALPHA= -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION	SD.FT.
(LET043)	AMES97-019C(1A81) LVAP	8.000	.000	1.550	.000	SREF	2690.0000
(LET143)	AMES97-019C(1A81) LVAP	8.000	.000	1.550	.000	LREF	1297.0000
(LET143)	AMES97-019C(1A81) LVAP	8.000	.000	1.550	.000	BREF	1297.0000
(LET143)	AMES97-019C(1A81) LVAP	8.000	.000	1.550	.000	XMRP	976.0000
(LET143)	AMES97-019C(1A81) LVAP	8.000	.000	1.550	.000	YMRP	.0000
(LET143)	AMES97-019C(1A81) LVAP	8.000	.000	1.550	.000	ZMRP	400.0000
						SCALE	.0300

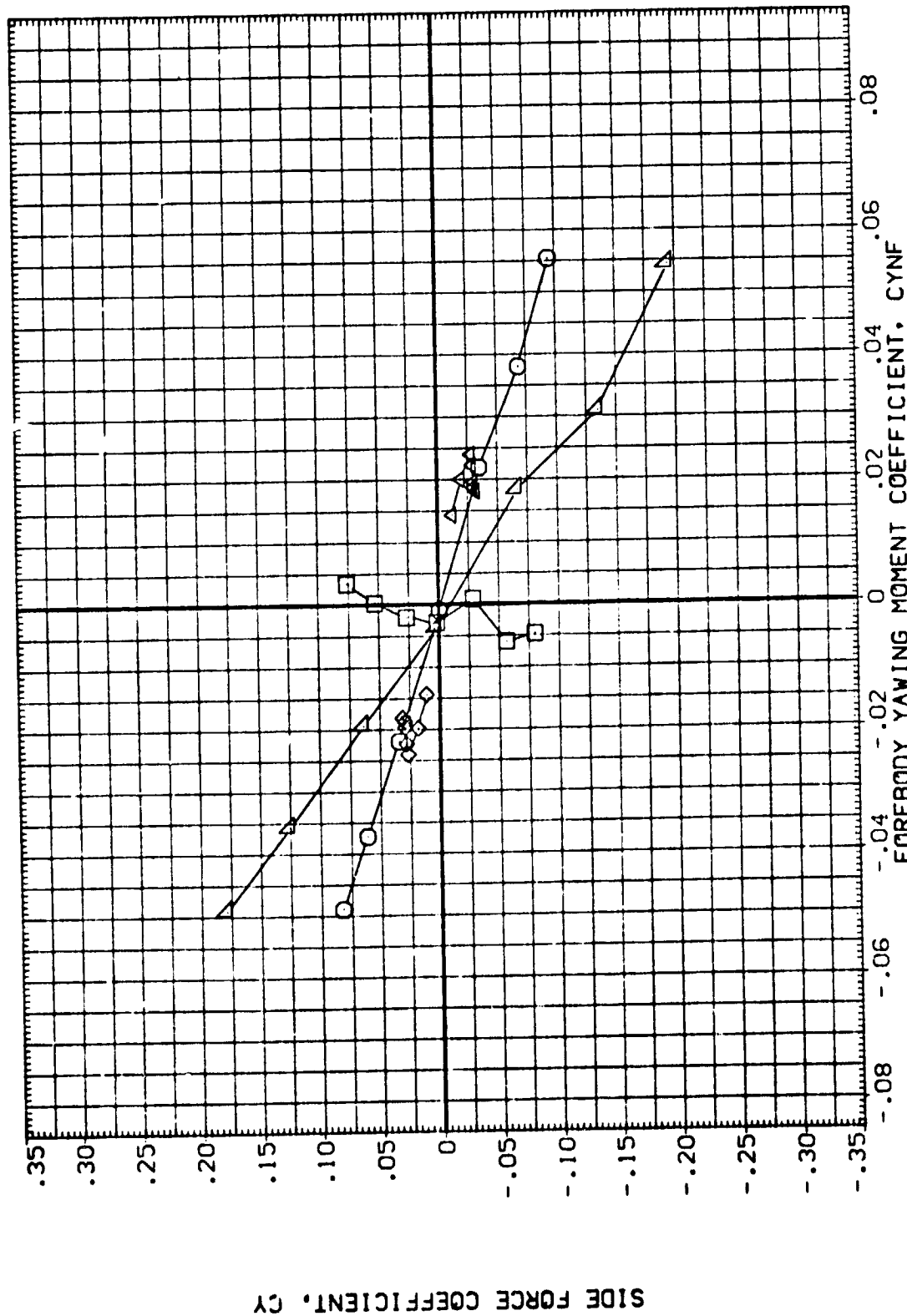


FIG. 19 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0

(D)ALPHA= .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION	SD.FT.
(LETO43)	AMES97-019(IAB1) LVAP CRB1TER-ALL HL SEALED	8.000	.000	1.550	.000	SREF	2690.0000
(LETT43)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	1.550	.000	LREF	1297.0000
(LETT43)	AMES97-019(IAB1) LVAP C-SRB - ALL HL SEALED	8.000	.000	1.550	.000	BREF	1297.0000
(LETT43)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	.000	1.550	.000	XMRP	976.0000
(LETT43)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	1.550	.000	YMRP	.0000
						ZMRP	400.0000
						SCALE	.0300

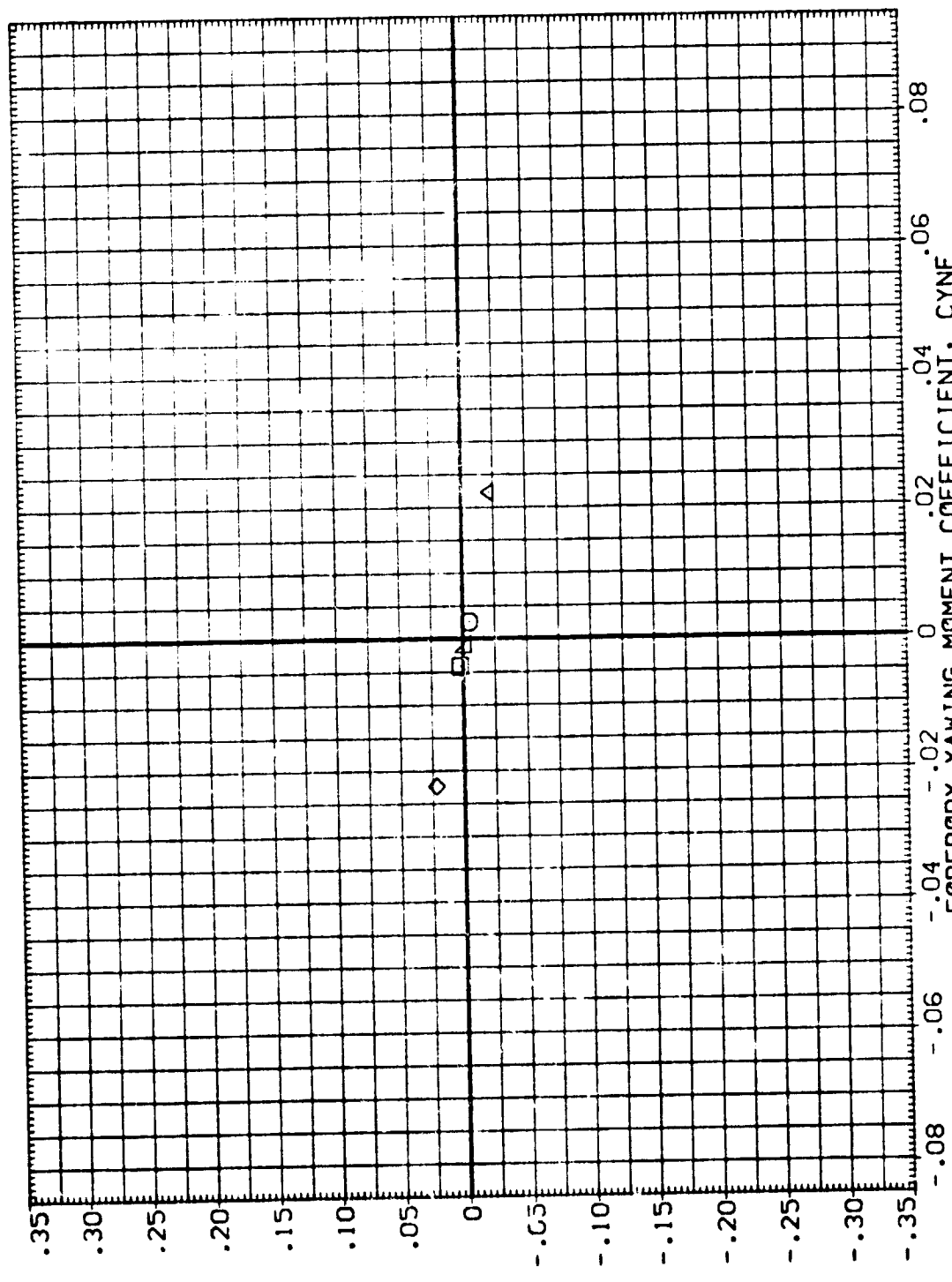


FIG. 19 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0
(E)ALPHA= 2.00

DATE	SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LE1043)	Q	AMES97-019(1A81) LVAP ORBITTER-ALL HL SEALED	8.000	.000	1.550	.000	SREF 2690.0000 SO.FT.
(LE1143)	Q	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(LE1143)	Q	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN.
(LE1143)	Q	AMES97-019(1A81) LVAP R-LRB - ALL HL SEALED	8.000	.000	1.550	.000	XMRP 976.0000 IN.
(LE1143)	Q	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	.000	1.550	.000	YMRP 400.0000 IN.
							ZMRP .0300
							SCALE

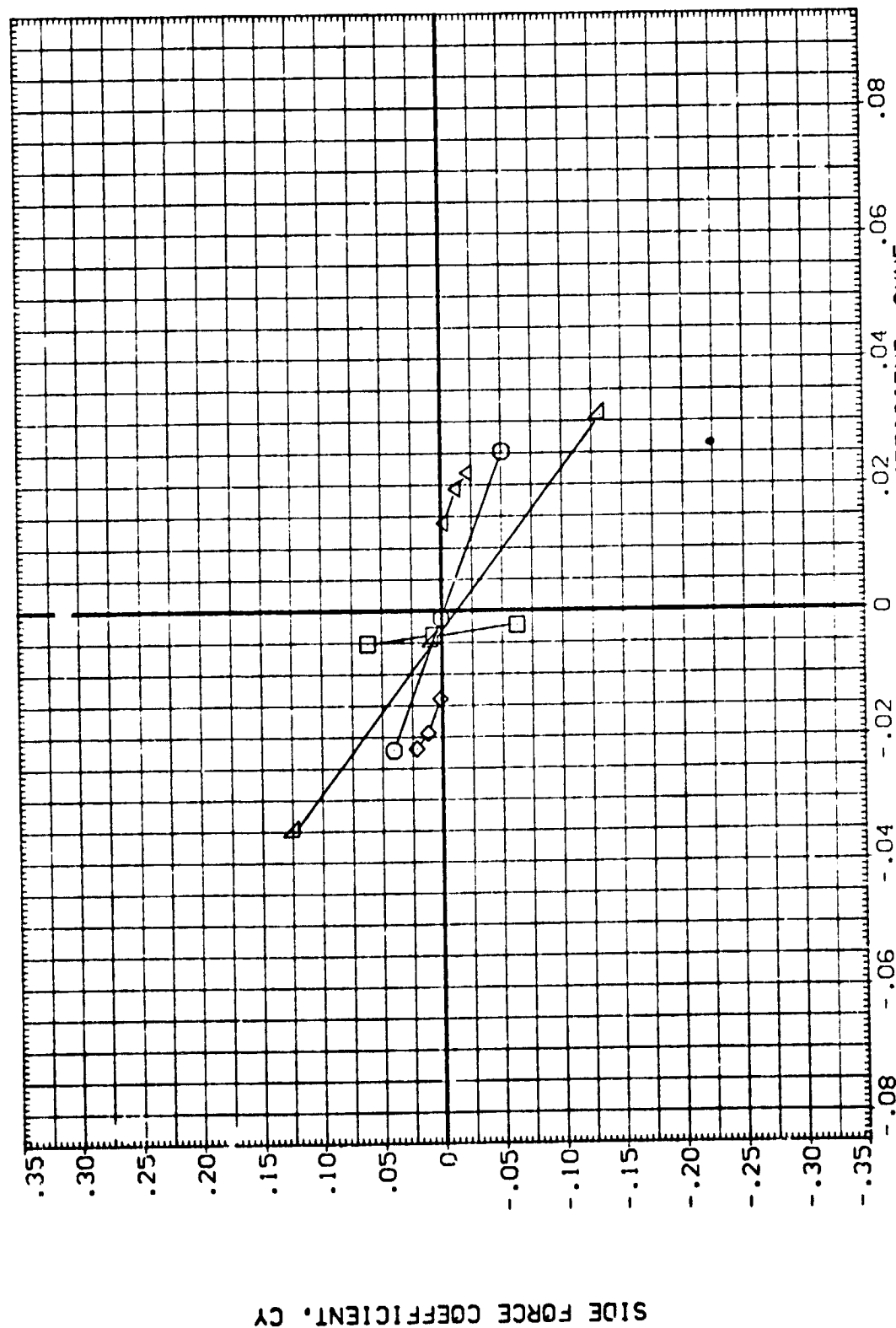


FIG. 19 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=1.55$ DEV=8/0
(F)ALPHA= 4.00 PAGE 419

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDBRK	REFERENCE INFORMATION
(LET043)	AMES97-019C(1A81) LVAP ORBITER-ALL HL SEALED	8.000	.000	1.550	.000	SREF 2690.0000 SC.FT.
(LET143)	AMES97-019C(1A81) LVAP TANK - ALL HL SEALED	3.000	.000	1.550	.000	LREF 1297.0000 IN.
(LET143)	AMES97-019C(1A81) LVAP L-SRB - ALL HL SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN.
(LET143)	AMES97-019C(1A81) LVAP R-LRB - ALL HL SEALED	8.000	.000	1.550	.000	YMRP 976.0000 IN.
(LET143)	AMES97-019C(1A81) LVAP INT VEH ALL HL SEALED	8.000	.000	1.550	.000	ZMRP 400.0000 IN.
						SCALE .0300

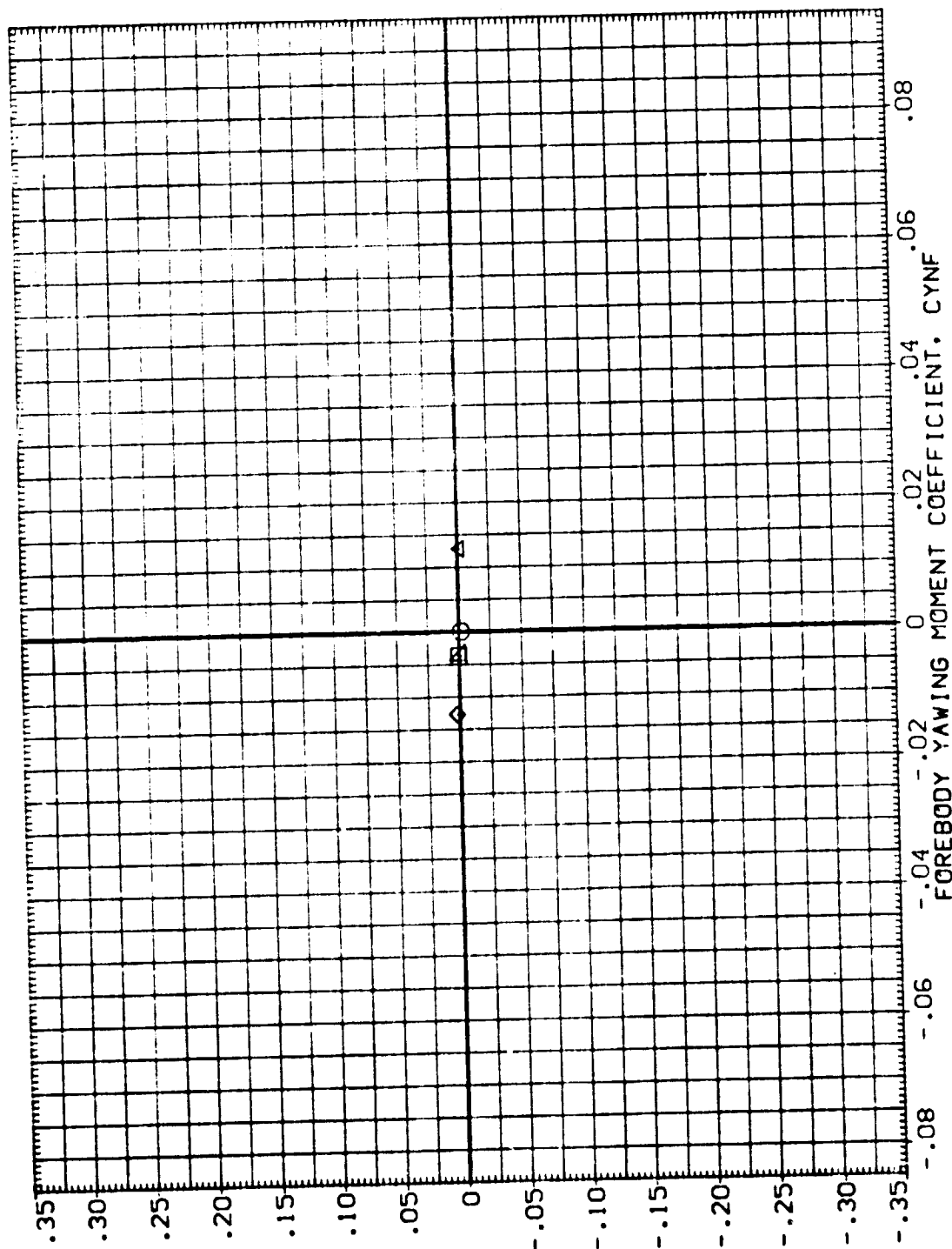


FIG. 19 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0

(G)ALPHA= 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(LE1043)	AME597-019(1A81) LVAP CRB1TTER-ALL HL SEALED	8.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LE1143)	AME597-019(1A81) LVAP TANK - ALL HL SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(LE1243)	AME597-019(1A81) LVAP L-SRB - ALL HL SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN.
(LE1343)	AME597-019(1A81) LVAP R-LRB ALL HL SEALED	8.000	.000	1.550	.000	YMRP 976.0000 IN.
(LE1443)	AME597-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	.000	1.550	.000	ZMRP 400.0000 IN.
						SCALE .0300

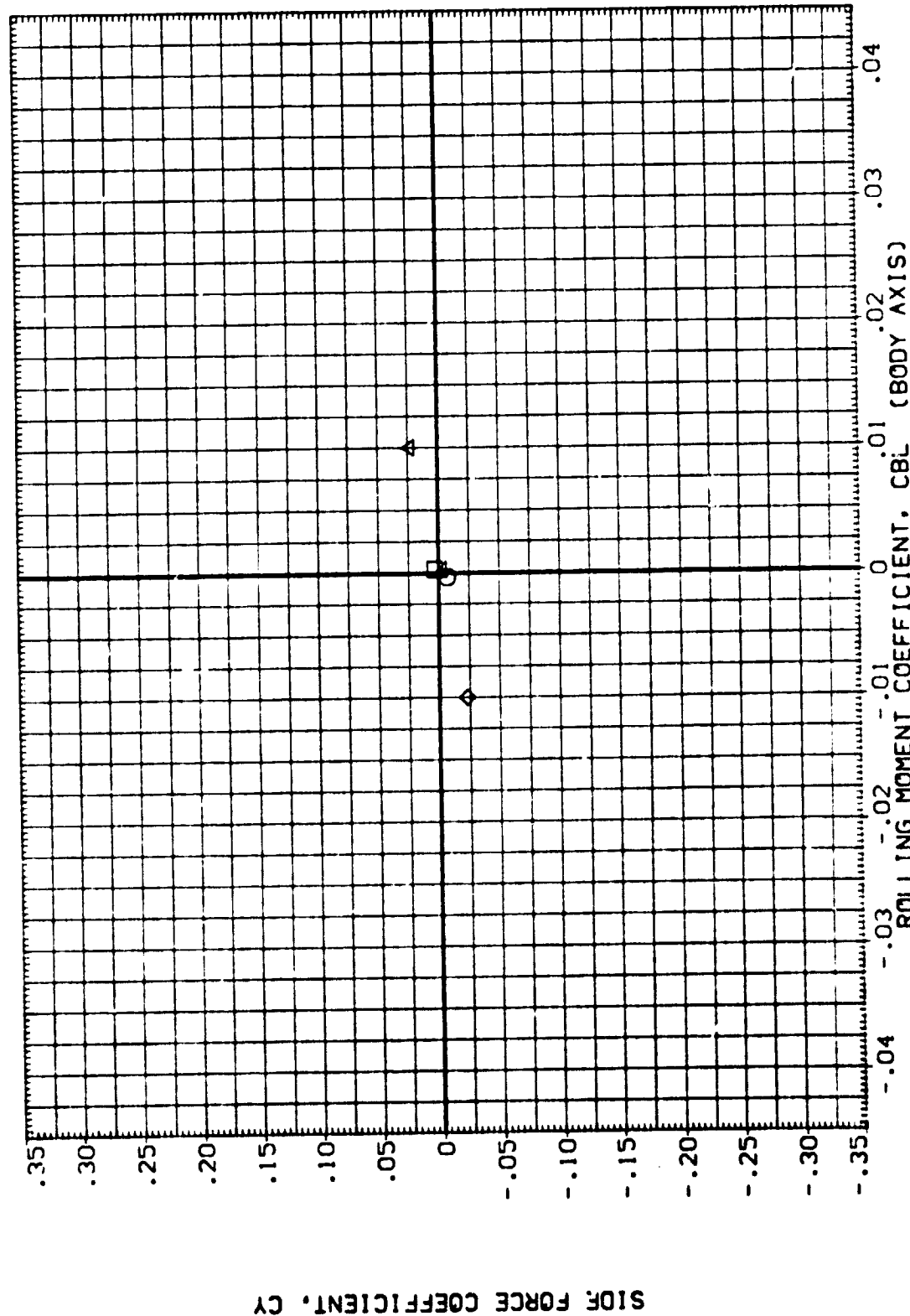


FIG. 19 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=1.55$ $DEV=8/0$

(A) $\alpha = -6.00$

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(LETO43)	AMES97-019(IAB1) LVAP ORBITTER-ALL ML SEALED	8.000	.000	1.550	.000	SREF 2690.0000 SO.FT.
(LETT43)	AMES97-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(LETL43)	AMES97-019(IAB1) LVAP L-SAB - ALL ML SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN.
(LETR43)	AMES97-019(IAB1) LVAP R-LRB ALL ML SEALED	8.000	.000	1.550	.000	XMRP 975.0000 IN.
(LETT43)	AMES97-019(IAB1) LVAP INT VEH ALL ML SEALED	8.000	.000	1.550	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

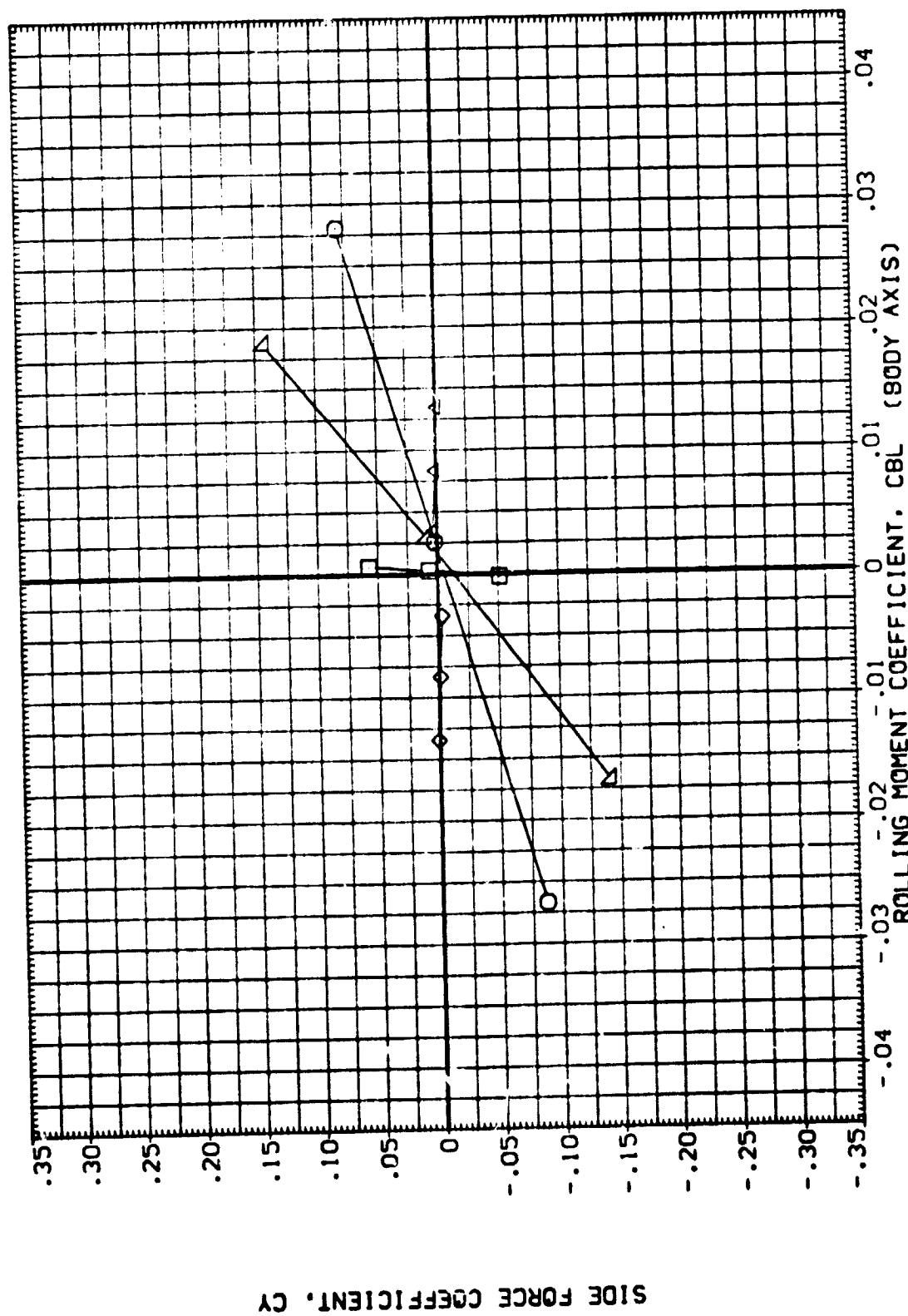


FIG. 19 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0
 (B) ALPHA = -4.00
 PAGE 422

REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPOBRK	REFERENCE INFORMATION
(LETO43)	APES97-019C(IAB1) LVAP CRB:TER-ALL ML SEALED	8.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LETT43)	APES97-019C(IAB1) LVAP TANK - ALL ML SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(LETT43)	APES97-019C(IAB1) LVAP L-SRB - ALL ML SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN.
(LETT43)	APES97-019C(IAB1) LVAP P-LRB - ALL ML SEALED	8.000	.000	1.550	.000	YMRP 976.0000 IN. XT
(LETT43)	APES97-019C(IAB1) LVAP INT VEH ALL ML SEALED	8.000	.000	1.550	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

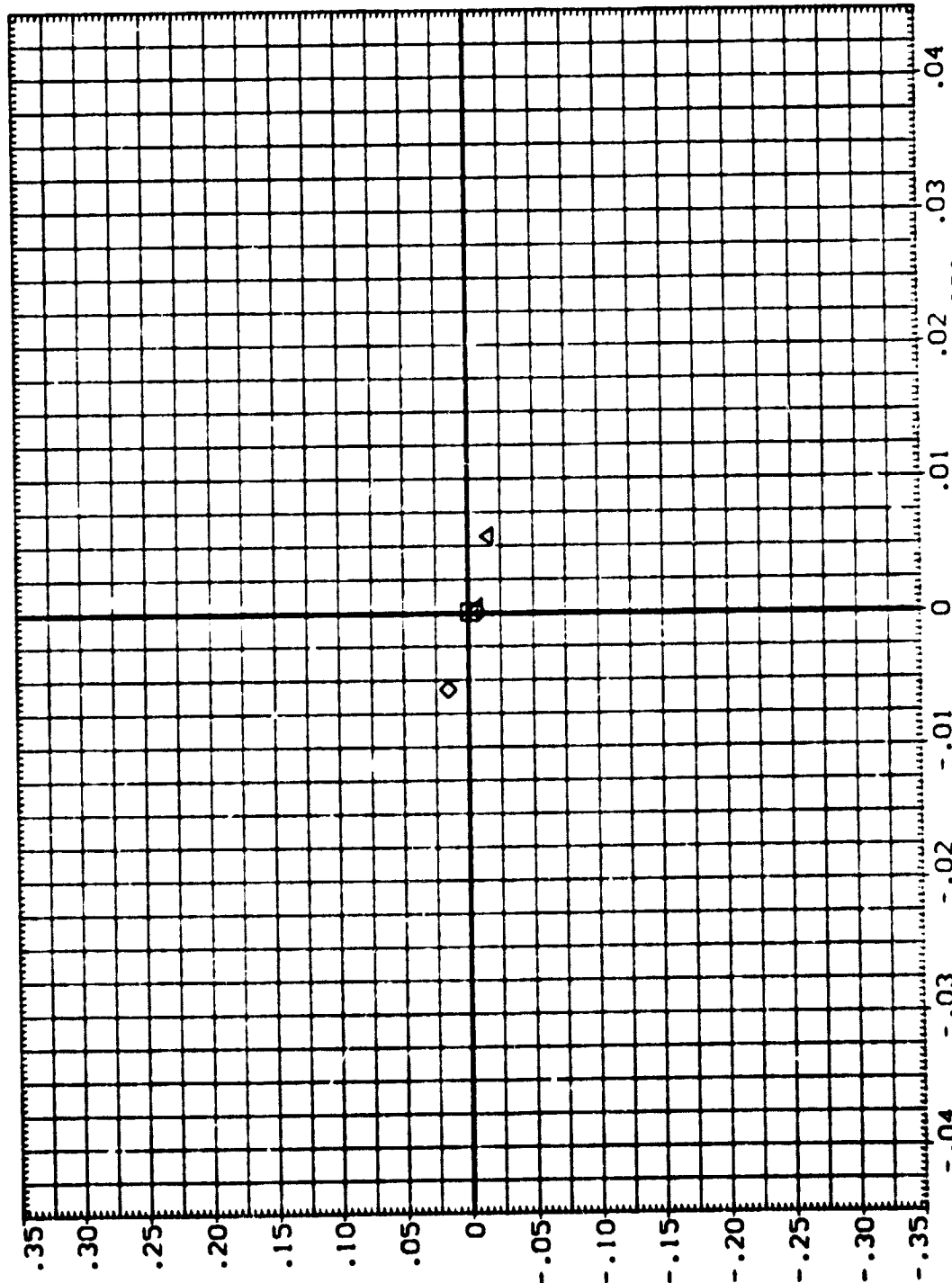


FIG. 13 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=1.55$ $DEV=8/0$
(C)ALPHA= -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(LETD43)	AMES97-019(IAB1) LVAP CRBTER-ALL ML SEALED	8.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LETT43)	AMES97-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	.000	1.550	.000	IREF 1297.0000 IN.
(LETL43)	AMES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN.
(LETR43)	AMES97-019(IAB1) LVAP R-LRB - ALL ML SEALED	8.000	.000	1.550	.000	XMRP 976.0000 IN. XT
(LETT43)	AMES97-019(IAB1) LVAP INT VEM ALL ML SEALED	8.000	.000	1.550	.000	YMRP 400.0000 IN. YT
						SCALE .0300

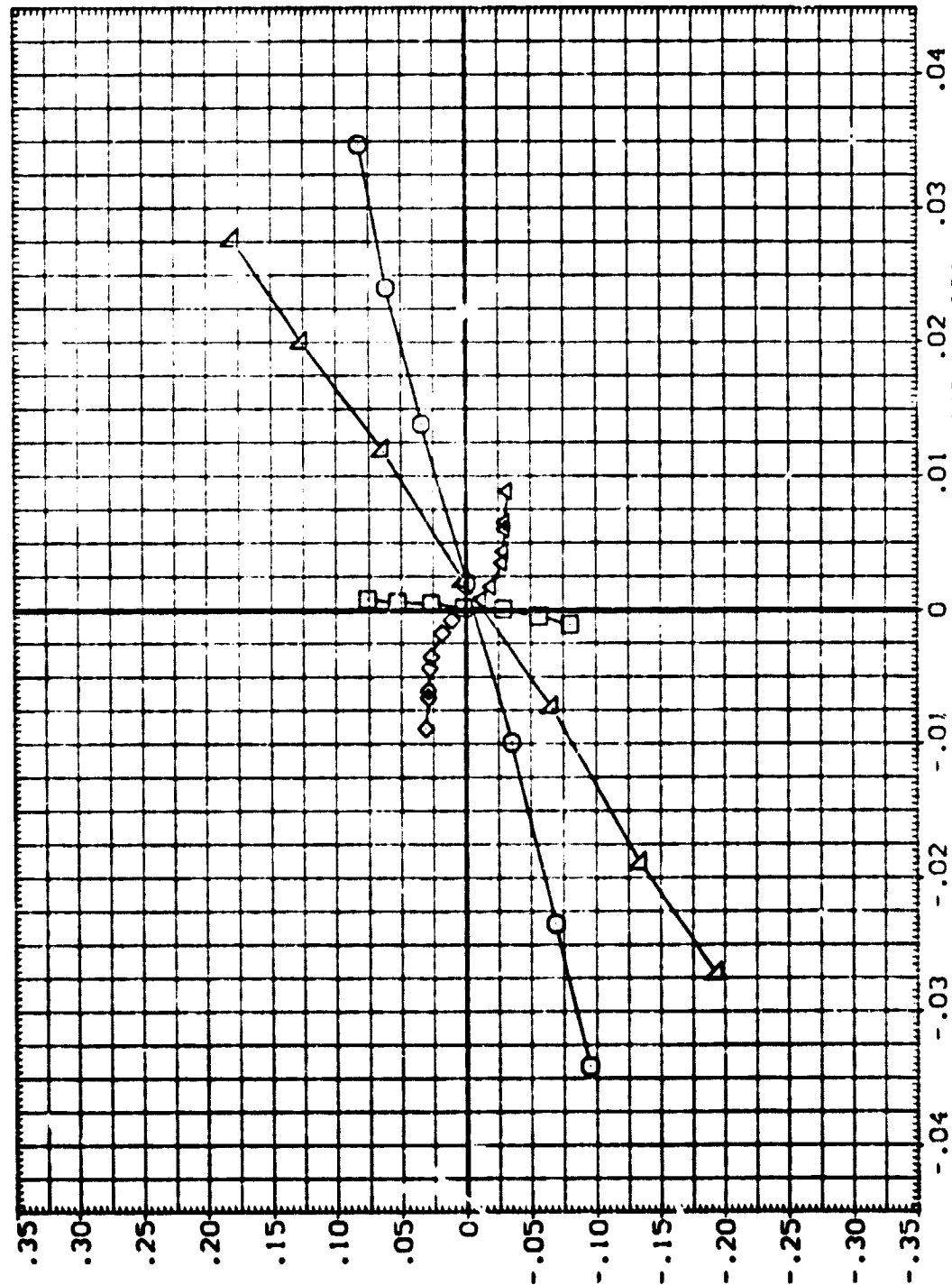


FIG. 19 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=1.55$ DEV-8/0
(D)ALPHA= .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPOBRK	REFERENCE INFORMATION
(LE1043)	AME597-0191(A81) LVAP ORBITER-ALL ML SEALED	8.000	.000	1.550	.000	SREF 2690.0000 50.FT.
(LE1143)	AME597-0191(A81) LVAP TANK - ALL ML SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(LE1243)	AME597-0191(A81) LVAP L-SRB - ALL ML SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN. XT
(LE1343)	AME597-0191(A81) LVAP R-LRB - ALL ML SEALED	8.000	.000	1.550	.000	YMRP 976.0000 IN. YT
(LE1443)	AME597-0191(A81) LVAP INT VEM ALL ML SEALED	8.000	.000	1.550	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

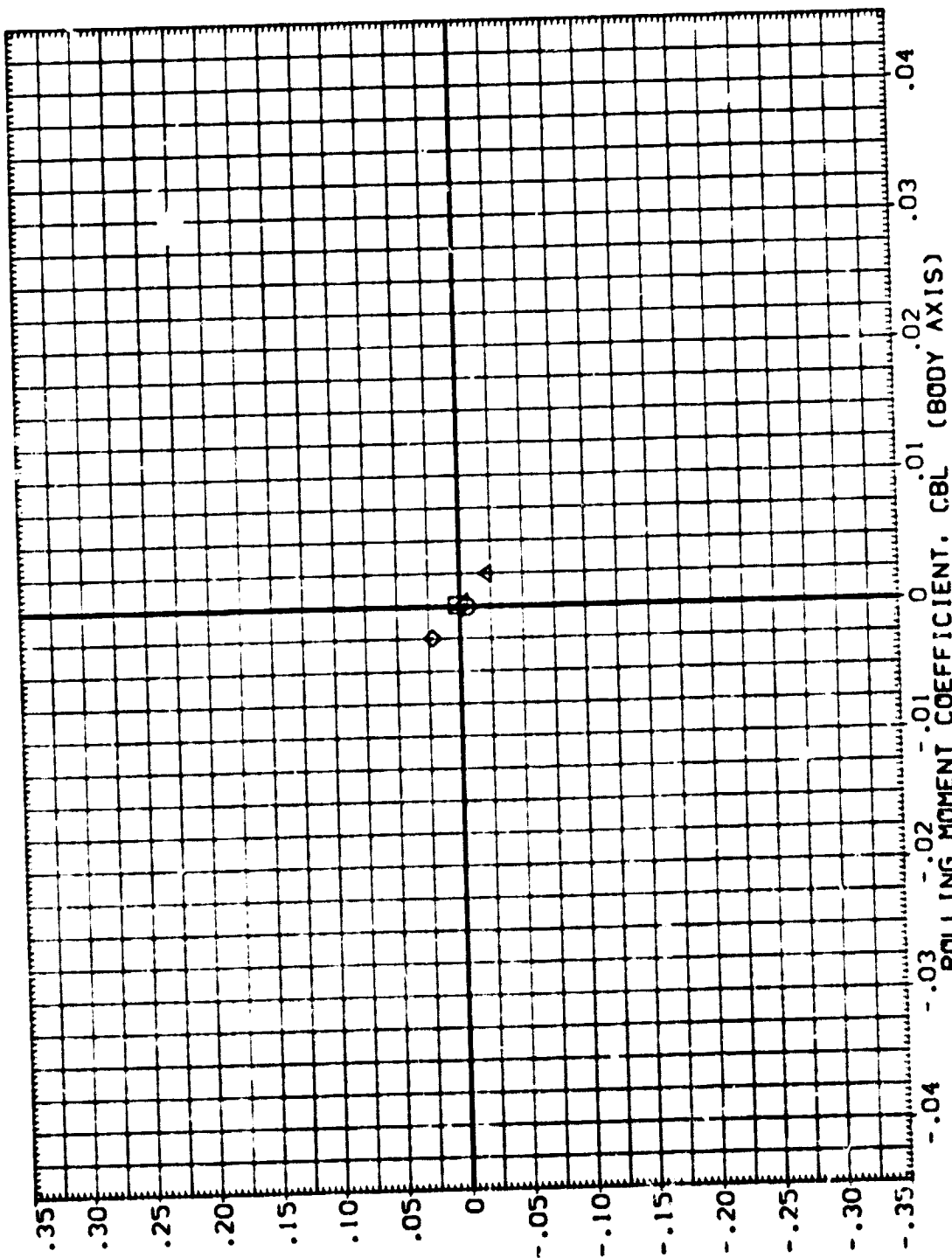


FIG. 19 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS. M=1.55 DEV=8/0
(E) ALPHA= 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LE1043)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LE1143)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(LE1243)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN.
(LE1343)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	8.000	.000	1.550	.000	XMRP 976.0000 IN. XI
(LE1443)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	1.550	.000	YMRP 400.0000 IN. YI
						ZMRP 400.0000 IN. ZI
						SCALE .0300

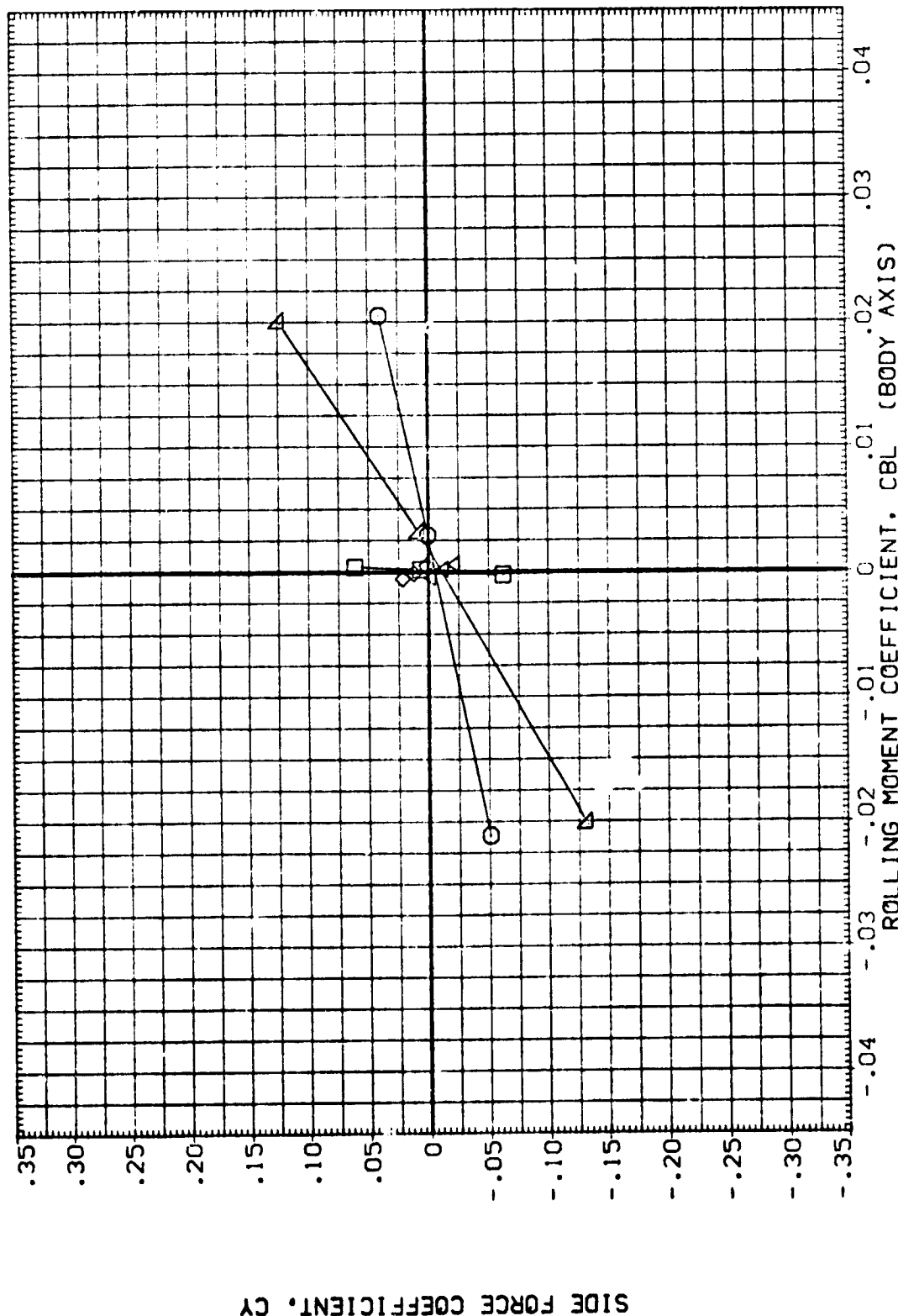


FIG. 19 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=8/0

(F) ALPHA = 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LE1043)	AME597-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	.000	1.550	.000	SREF 2690.0000 SO.FT.
(LE1143)	AME597-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(LE1243)	AME597-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	1.550	.000	BREF 1297.0000 IN.
(LE1343)	AME597-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	.000	1.550	.000	XMRP 976.0000 IN.
(LE1443)	AME597-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	1.550	.000	ZMRP 400.0000 IN.
(LE1543)						SCALE .0300

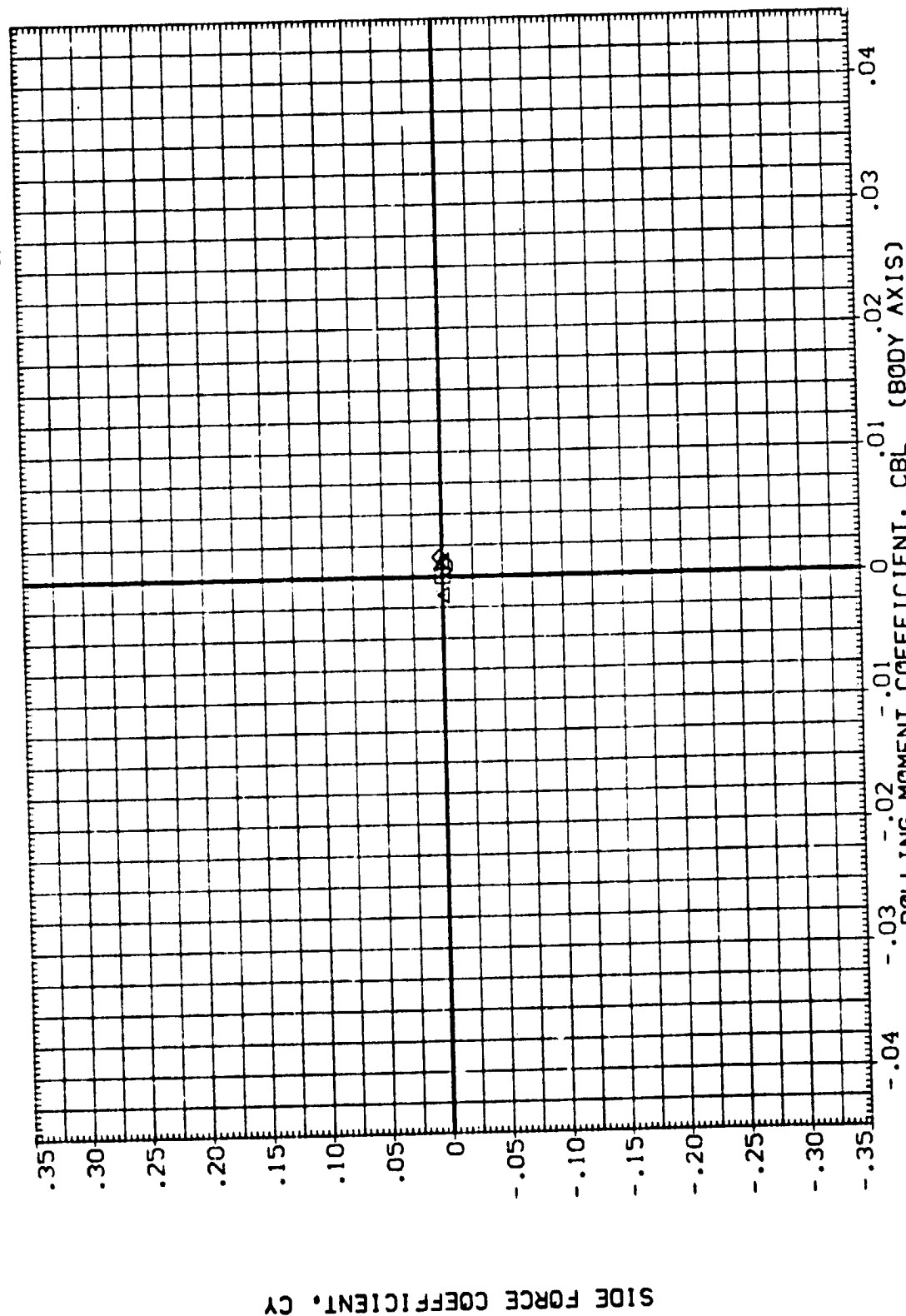


FIG. 19 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=1.55$ $DEV=8/0$

(G) ALPHA = 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LETO46)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	10.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LETT46)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LETL46)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LETR46)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	10.000	-4.000	1.550	.000	XMRP 976.0000 IN.
(LETT46)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	10.000	-4.000	1.550	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

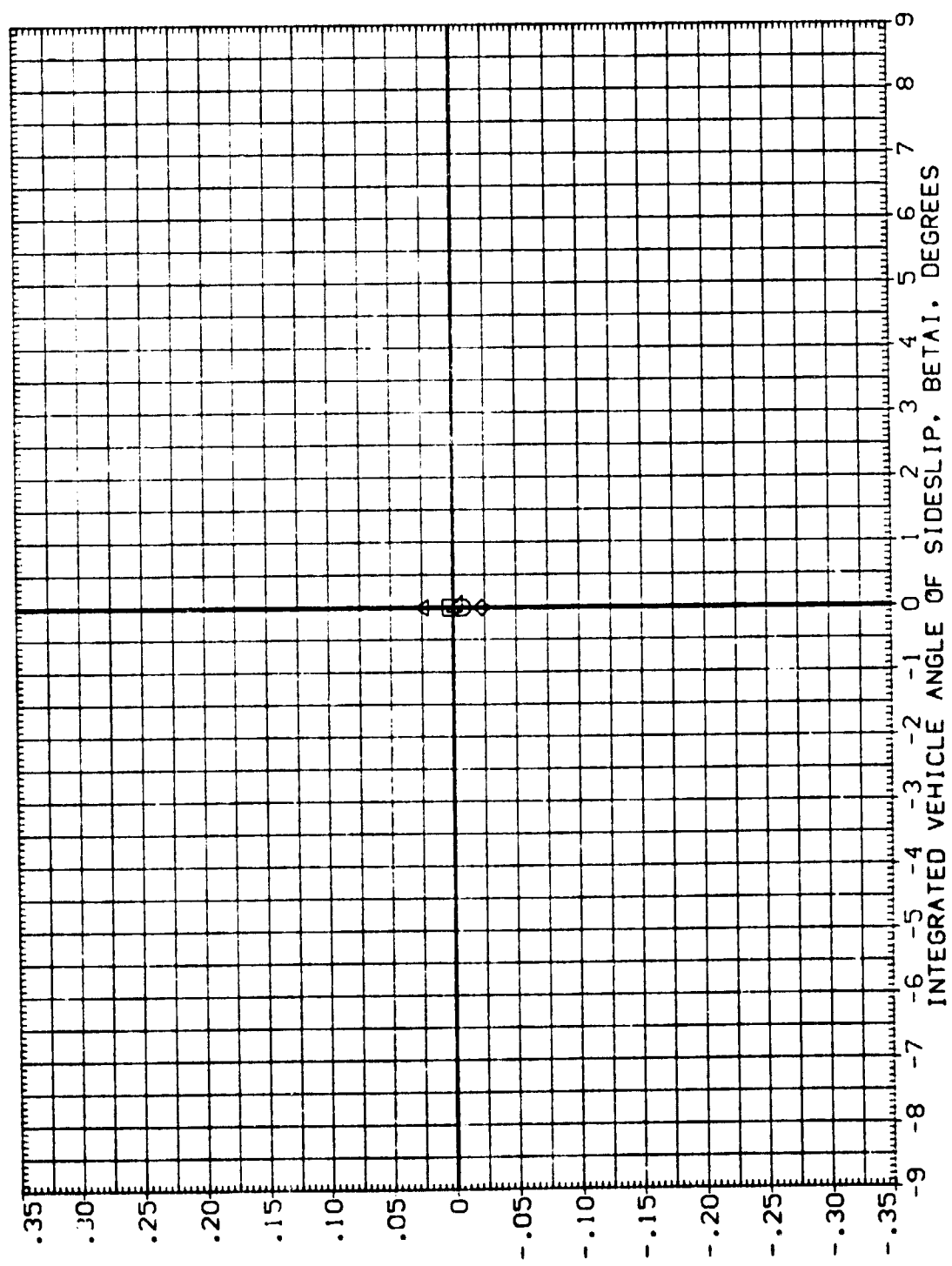


FIG. 20 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=10/-4

(A) ALPHA = -6.00

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(LET046)	□	AMES97-019(IAB1) LVAP ORBITTER-ALL HL SEALED	10.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LET146)	○	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LET145)	△	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LET146)	×	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	10.000	-4.000	1.550	.000	XMRP 976.0000 IN. XT
(LET146)	◇	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	10.000	-4.000	1.550	.000	YMRP .0000 IN. YT
							ZMRP 400.0000 IN. ZT
							SCALE .0300

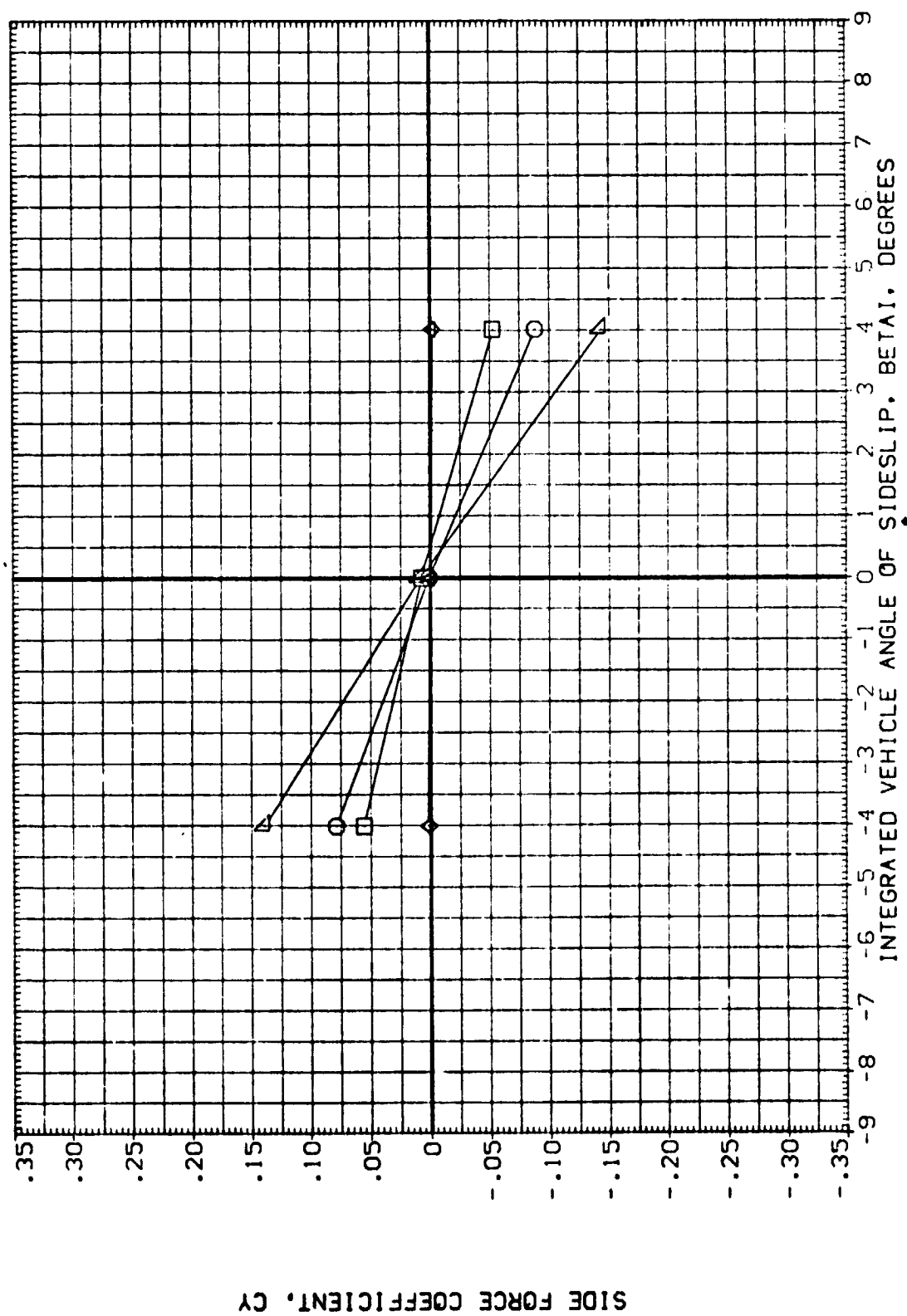


FIG. 20 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=1.55$ $\alpha_{DEV}=10/-4$

(B) $\alpha_{PIA1} = -4.00$

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(LETT046)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	10.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LETT46)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LETT46)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LETT46)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	10.000	-4.000	1.550	.000	YMRP 976.0000 IN. XT
(LETT46)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	10.000	-4.000	1.550	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

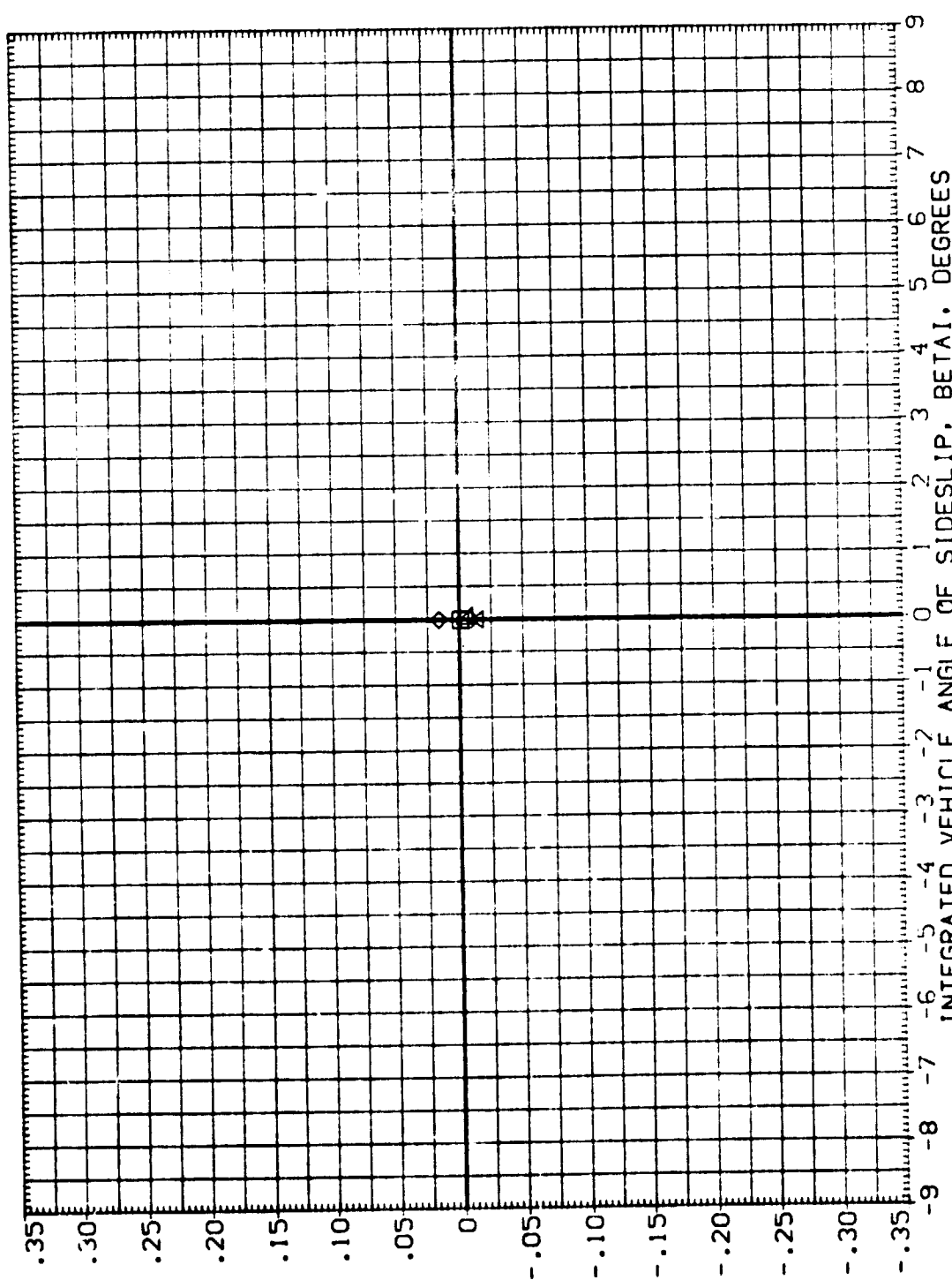


FIG. 20 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=10/-4

(C) ALPHA I = -2.00 PAGE 430

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-DB	MACH	SPDRK	REFERENCE INFORMATION
(LET046)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	10.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LET146)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LET146)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LET146)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	10.000	-4.000	1.550	.000	XMRP 976.0000 IN. XT
(LET146)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	10.000	-4.000	1.550	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

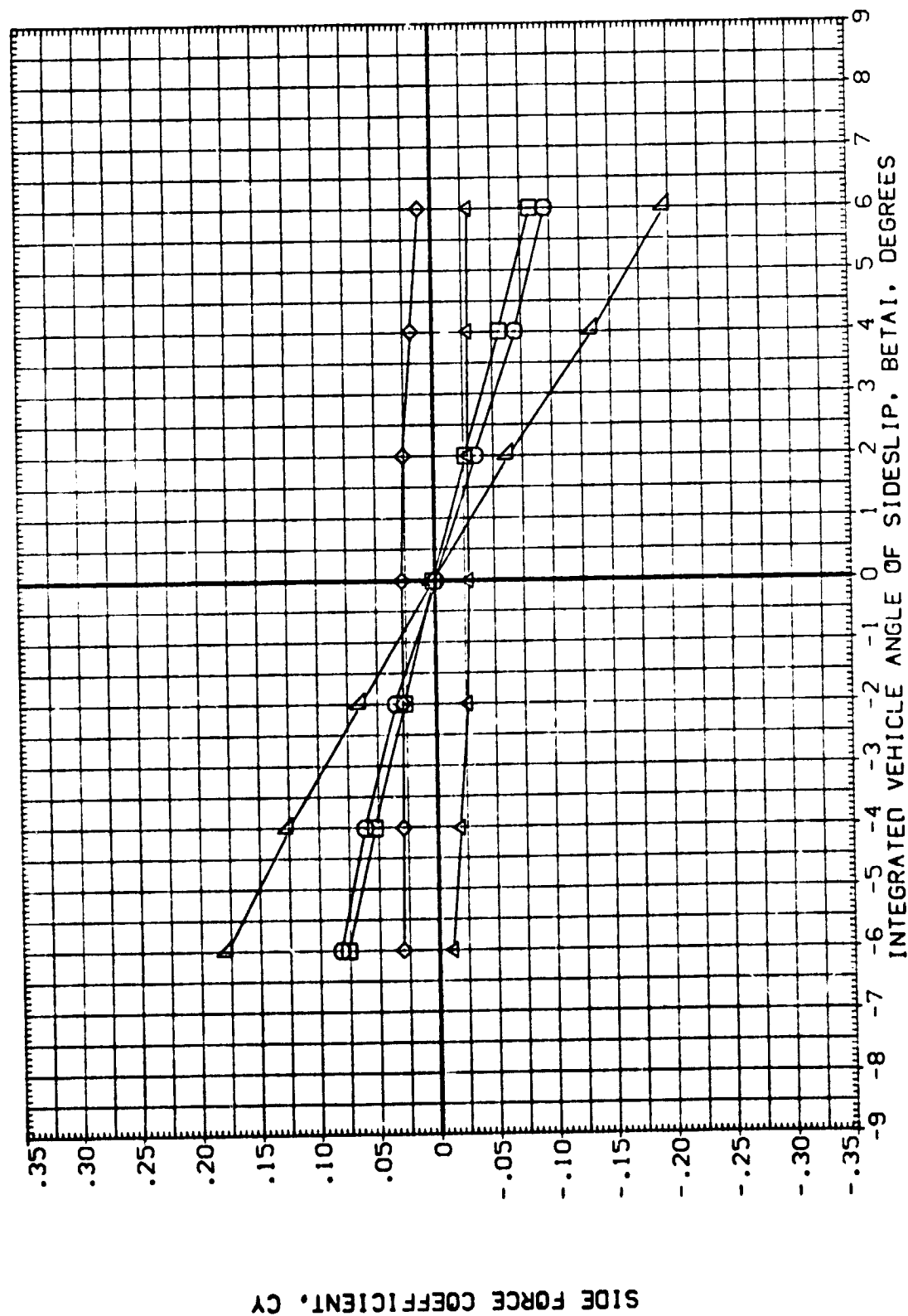


FIG. 20 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=1.55$ DEV=10/-4

(D) ALPHA I = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDRK	REFERENCE INFORMATION
(LE1046)	AME S97-019(IAB1) LVAP ORBITER-ALL HL SEALED	10.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LE1146)	AME S97-019(IAB1) LVAP TANK - ALL HL SEALED	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LE1146)	AME S97-019(IAB1) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LE1146)	AME S97-019(IAB1) LVAP R-LRB - ALL HL SEALED	10.000	-4.000	1.550	.000	NHRP 976.0000 IN.
(LE1146)	AME S97-019(IAB1) LVAP INT VEH ALL HL SEALED	10.000	-4.000	1.550	.000	YHRP .0000 IN.
						ZHRP 400.0000 IN.
						SCALE .0300

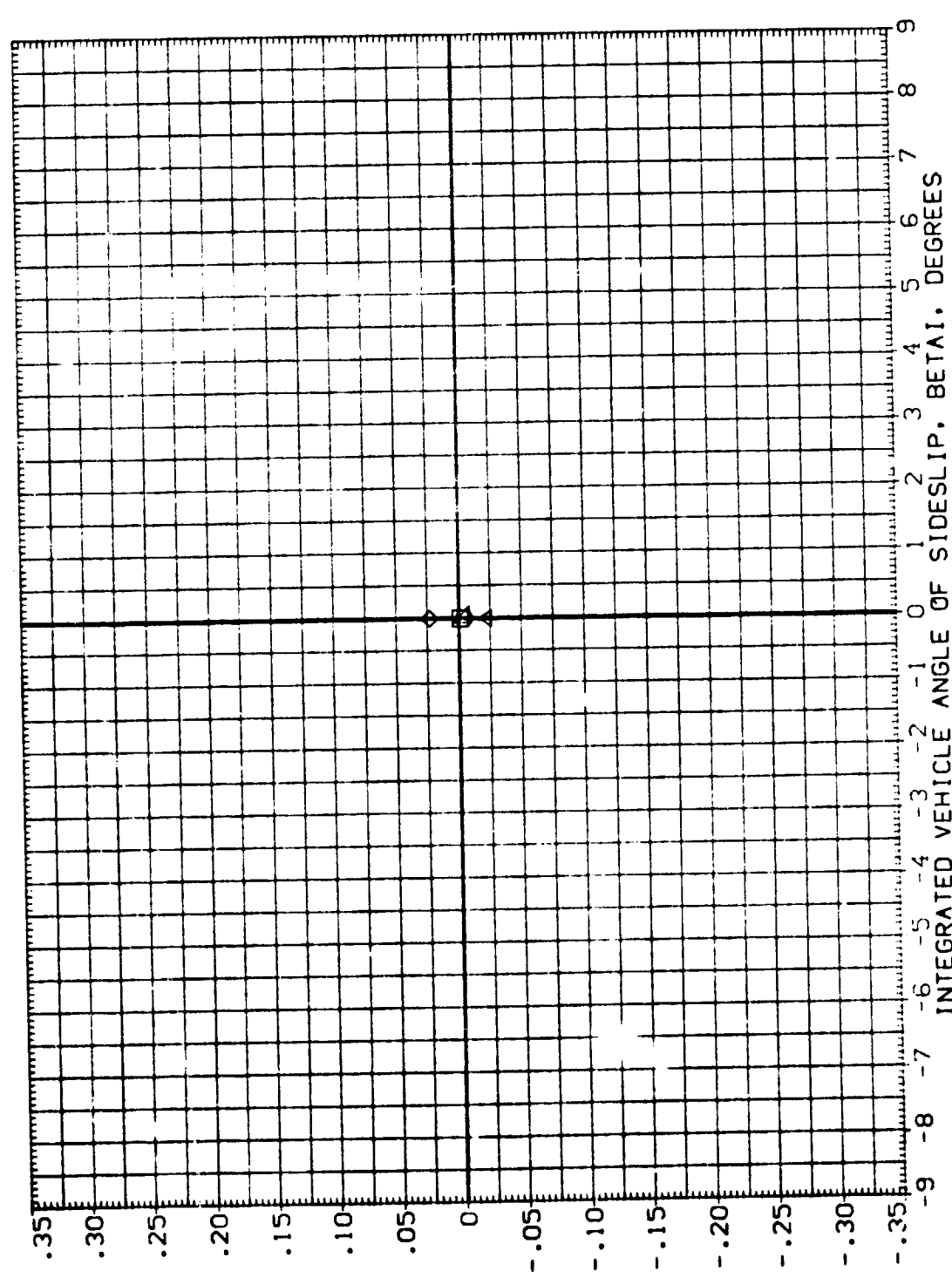


FIG. 20 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=1.55$ $DEV=10/-4$
 (E) $\alpha=2.00$ PAGE 432

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(LETT46)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	10.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LETT46)	AMES97-019(IAB1) LVAP TASK - ALL HL SEALED	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LETT46)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LETT46)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	10.000	-4.000	1.550	.000	XMRP 976.0000 IN. XT
(LETT46)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	10.000	-4.000	1.550	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

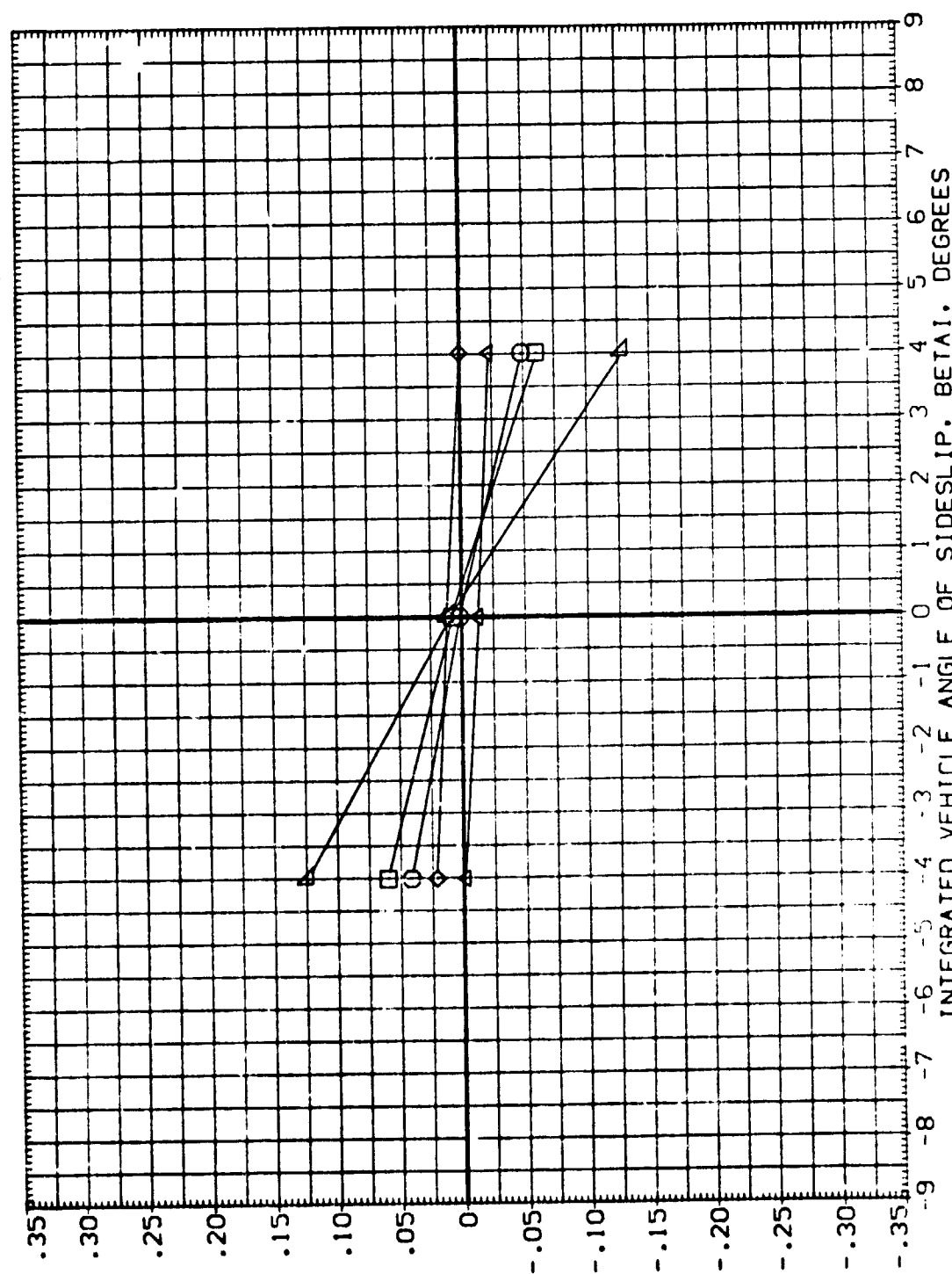


FIG. 20 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=10/-4

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LETO46)	APES97-019(IAB1) LVAP ORBITER-ALL ML SEALED	10.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LETT46)	APES97-019(IAB1) LVAP TANK - ALL ML SEALED	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LETL46)	APES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LETR46)	APES97-019(IAB1) LVAP R-LRB - ALL ML SEALED	10.000	-4.000	1.550	.000	XMRP 976.0000 IN.
(LETT46)	APES97-019(IAB1) LVAP INT VEH ALL ML SEALED	10.000	-4.000	1.550	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

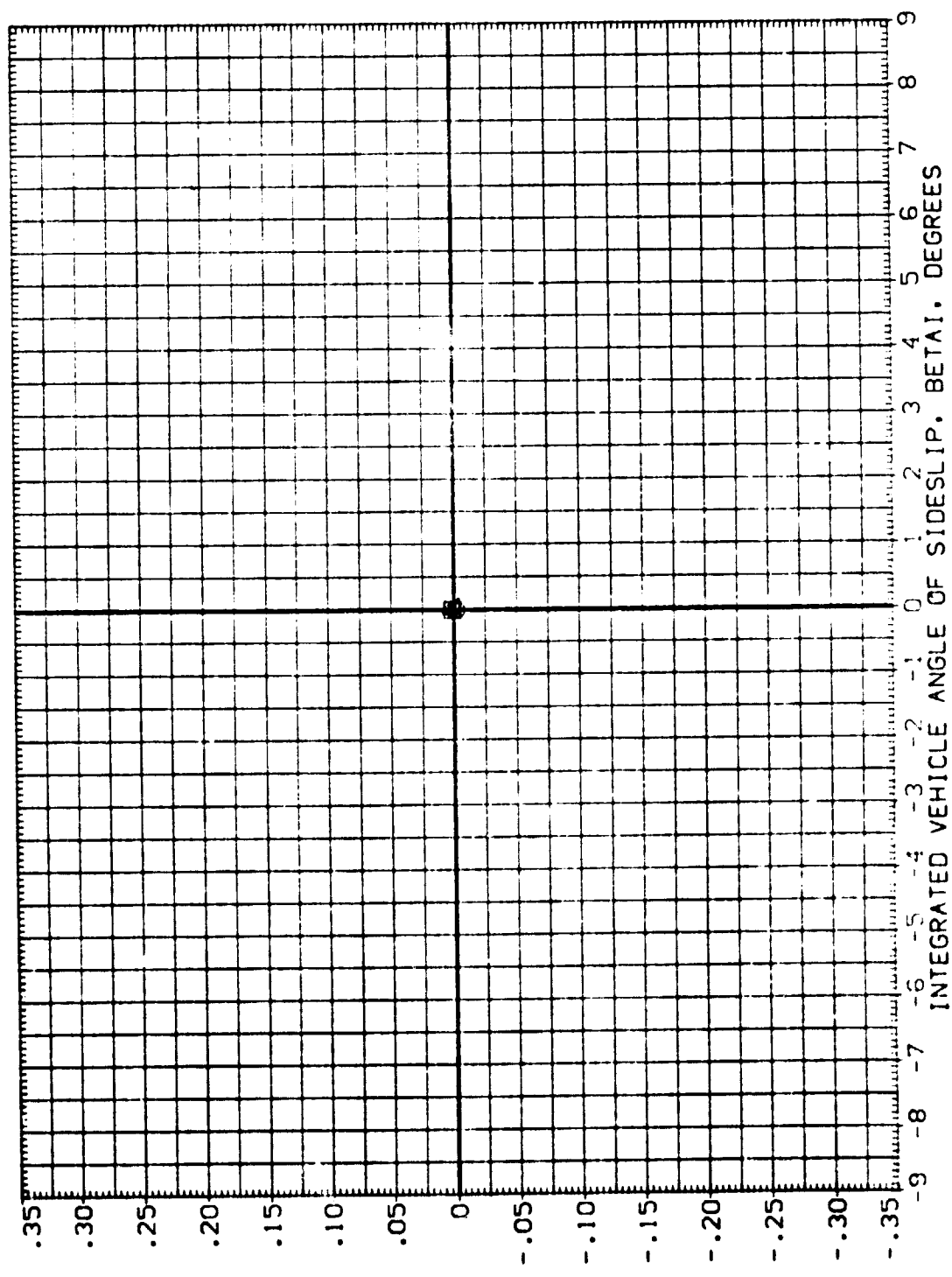


FIG. 20 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=1.55$ $DEV=10/-4$
 (G) $\alpha=6.00$ PAGE 434

SIDE FORCE COEFFICIENT, CV

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LE1046)	ANES97-019C(1A81) LVAP ORBITER-ALL ML SEALED	10.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LE1146)	ANES97-019C(1A81) LVAP TANK - ALL ML SEALED	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LE1246)	ANES97-019C(1A81) LVAP L-SPB - ALL ML SEALED	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LE1346)	ANES97-019C(1A81) LVAP R-LRB - ALL ML SEALED	10.000	-4.000	1.550	.000	YMRP 976.0000 IN.
(LE1446)	ANES97-019C(1A81) LVAP INT VEH ALL ML SEALED	10.000	-4.000	1.550	.000	ZMRP 400.0000 IN.
(LE1546)						SCALE .0300

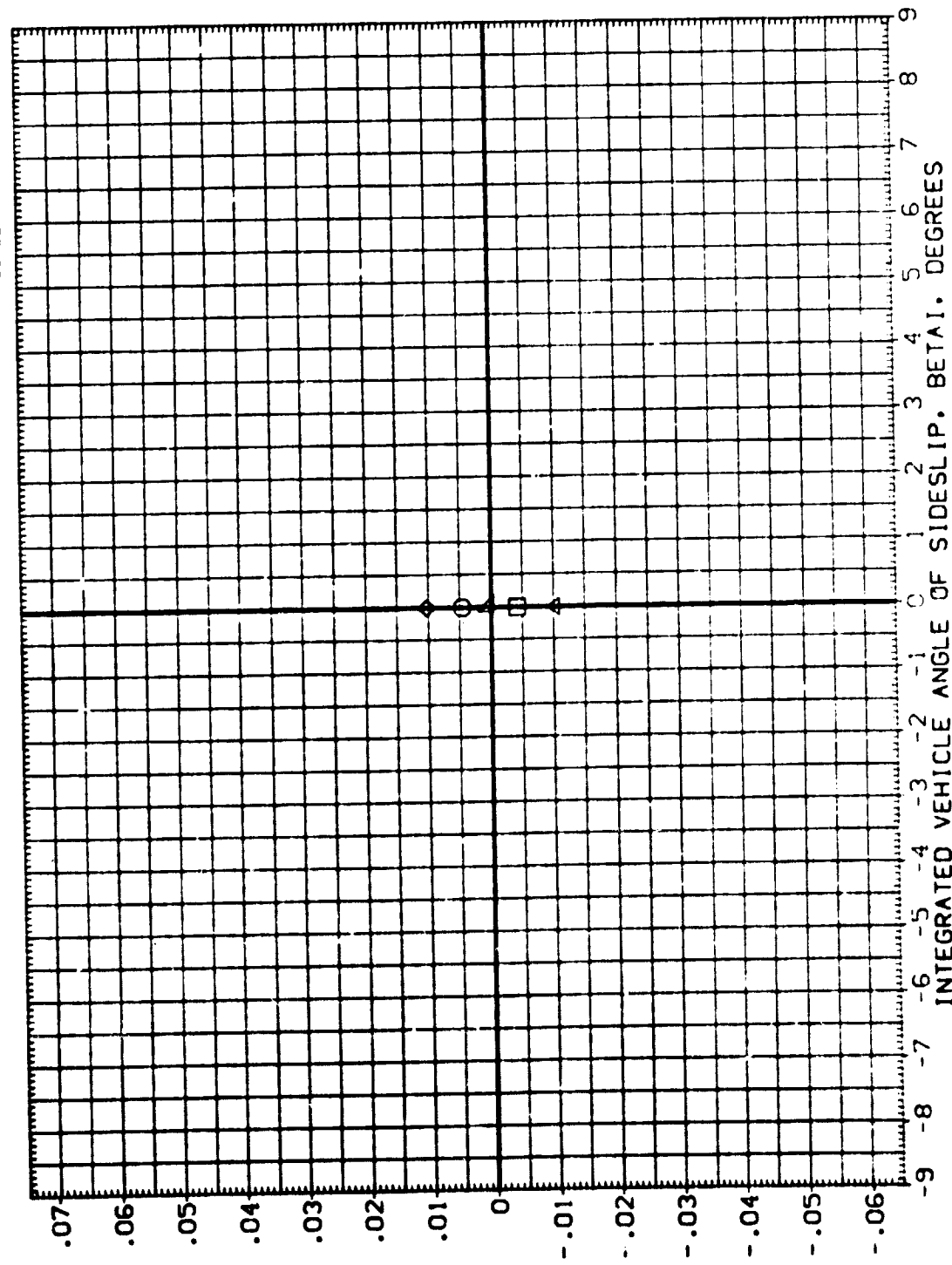


FIG. 20 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=10/-4
(ALPHA) = -6.00

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(LE1046)	○	AVES97-0191(A81) LVAP ORBITER-ALL HL SEALED	10.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LE1146)	△	AVES97-0191(A81) LVAP TANK - ALL HL SEALED	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LE1246)	□	AVES97-0191(A81) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LE1346)	◇	AVES97-0191(A81) LVAP R-LRB - ALL HL SEALED	10.000	-4.000	1.550	.000	YMRP 976.0000 IN.
(LE1446)	△	AVES97-0191(A81) LVAF INT VEM ALL HL SEALED	10.000	-4.000	1.550	.000	ZMRP 400.0000 IN.
(LE1546)	○						SCALE .0300

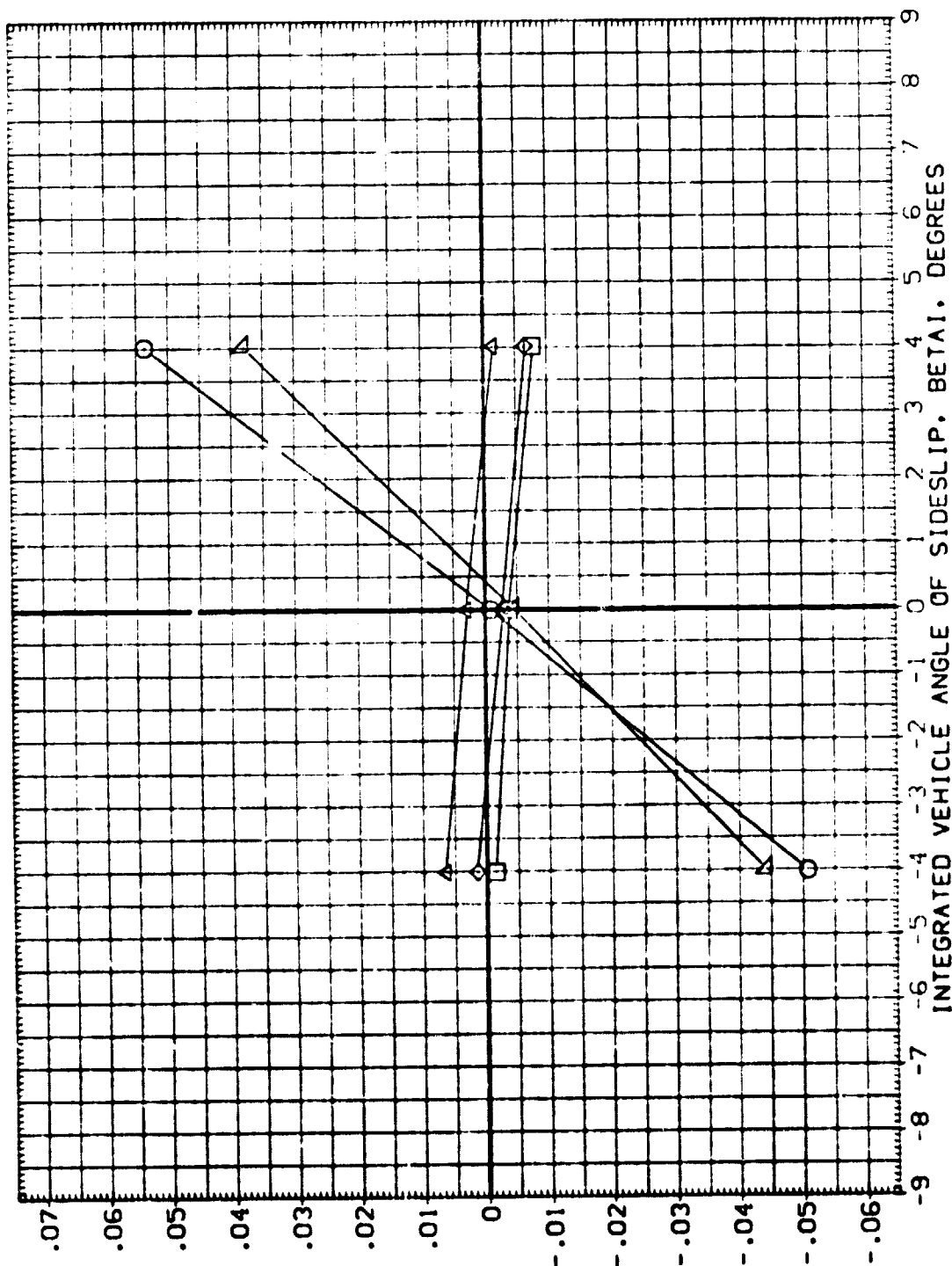


FIG. 20 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=1.55$ $DEV=10/-4$
 (8) $\alpha_{H1} = -4.00$ PAGE 436

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDBRK	REFERENCE INFORMATION
(LE1046)	ORBITER-ALL ML SEALED	10.000	-4.000	1.550	.000	SREF 2690.0000 SO.FT.
(LE1146)	TANK - ALL ML SEALED	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LE1445)	L-SPB - ALL ML SEALED	10.000	-4.000	1.550	.000	BREF 1297.0000 IN. XT
(LE1446)	R-LRB - ALL ML SEALED	10.000	-4.000	1.550	.000	XMF 976.0000 IN. YT
(LE1447)	LVAP INT VEH ALL ML SEALED	10.000	-4.000	1.550	.000	YMRP 400.0000 IN. ZT
						SCALE .0300

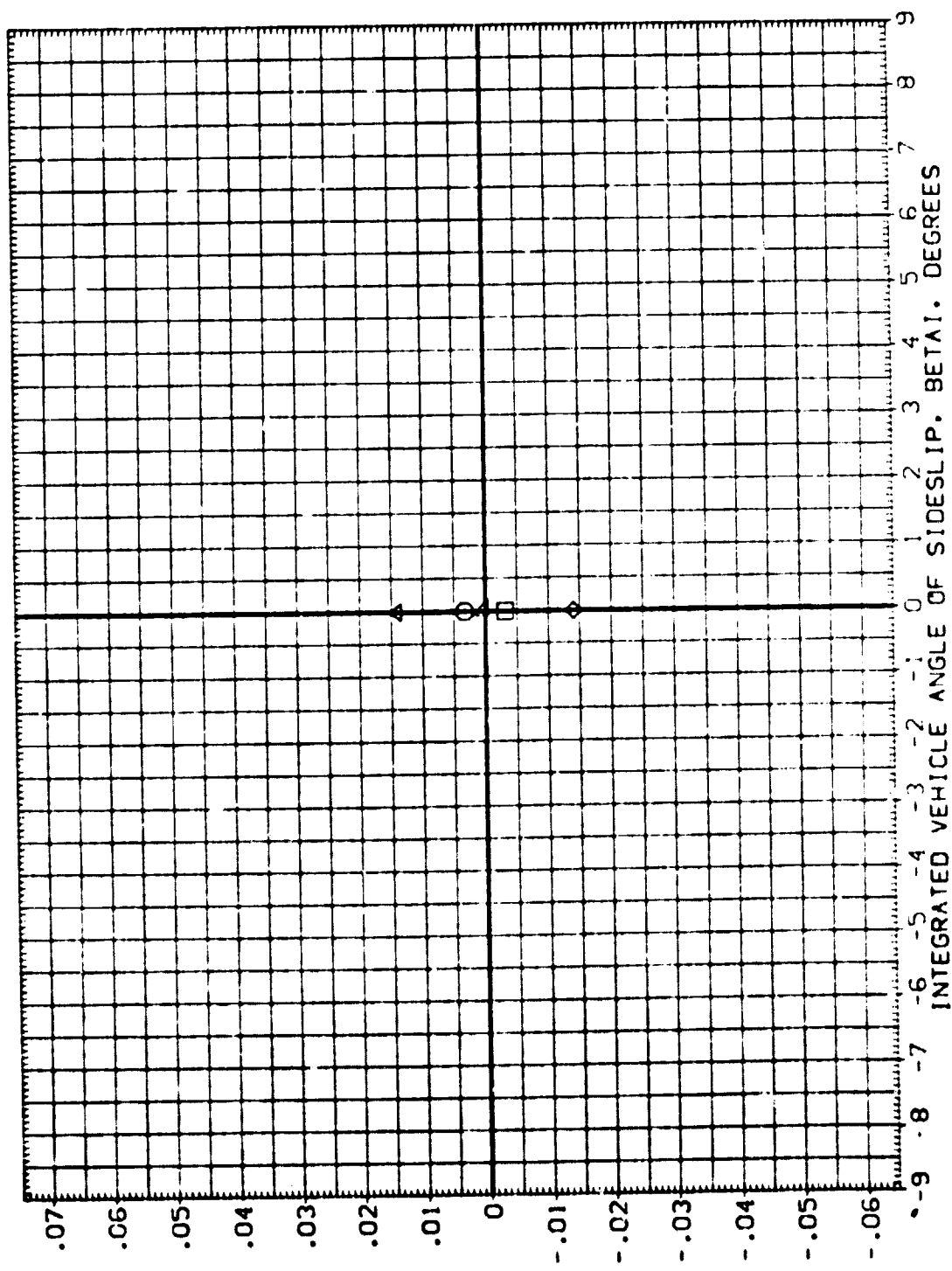


FIG. 20 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS. M=1.55 DEV=10/-4
(C)ALPHA= -2.00

DATA SET 5100L

CONFIGURATION DESCRIPTION	ELV-19	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
AME597-019(IAB1) LVAP	10.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
AME597-019(IAB1) LVAP	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
AME597-019(IAB1) LVAP	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
AME597-019(IAB1) LVAP	10.000	-4.000	1.550	.000	XMRP 976.0000 IN.
AME597-019(IAB1) LVAP	10.000	-4.000	1.550	.000	YMRP 400.0000 IN.
AME597-019(IAB1) LVAP	10.000	-4.000	1.550	.000	ZMRP 400.0000 IN.
AME597-019(IAB1) LVAP	10.000	-4.000	1.550	.000	SCALE .0300

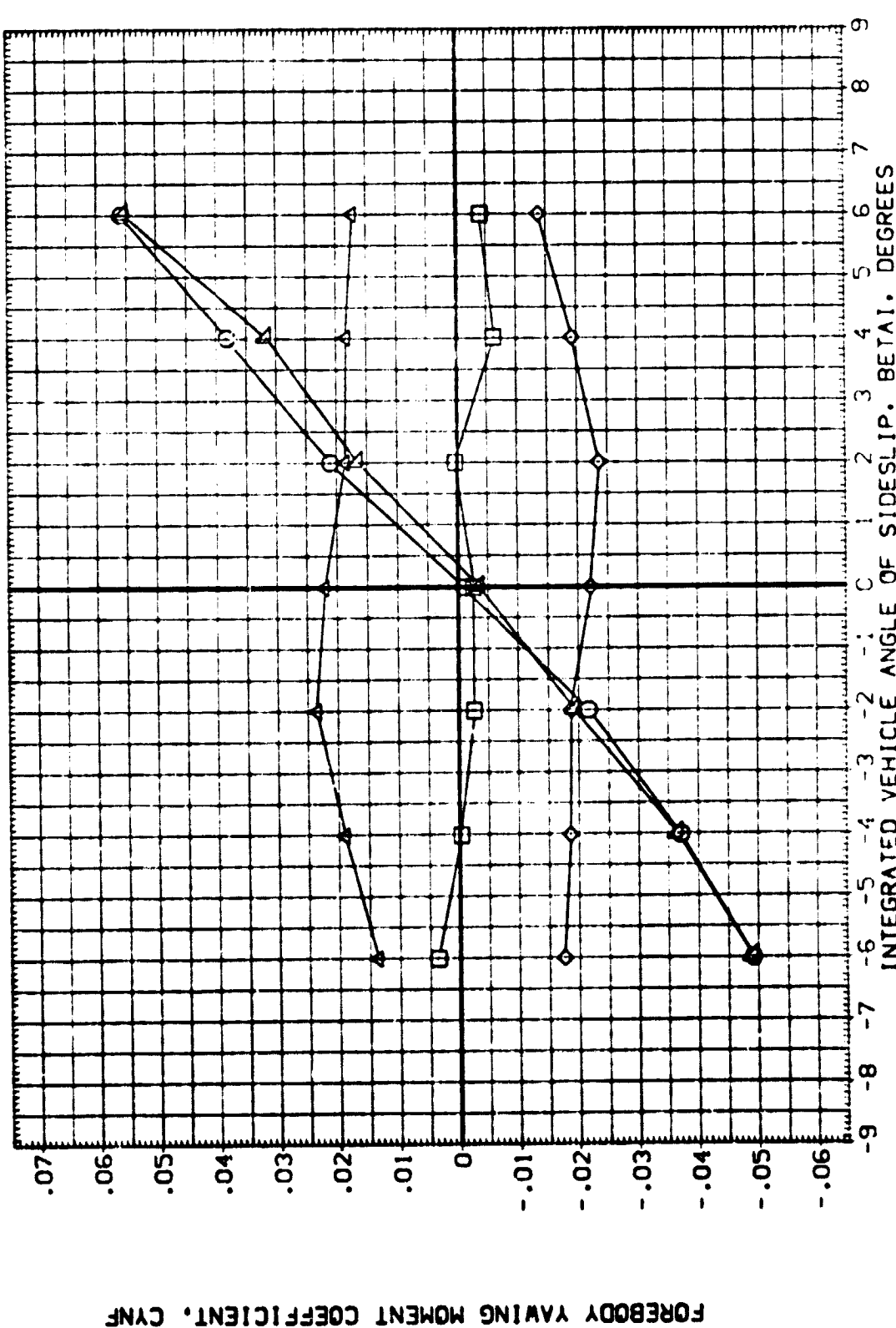


FIG. 20 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=10/-4
 (O) ALPHA= .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDBRK	REFERENCE INFORMATION
(LE1046)	AVE597-0191(A81) LVAP CRBIT7-ALL ML SEALED	10.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LE1746)	AVE597-0191(A31) LVAP YAW - ALL ML SEALED	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LE1746)	AVE597-0191(A81) LVAP L-SRB - ALL ML SEALED	10.000	-4.000	1.550	.000	BREF 976.0000 IN. XT
(LE1746)	AVE597-0191(A81) LVAP R-LRB - ALL ML SEALED	10.000	-4.000	1.550	.000	XMRP .0000 IN. YT
(LE1746)	AVE597-0191(A31) LVAP INT VEH ALL ML SEALED	10.000	-4.000	1.550	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

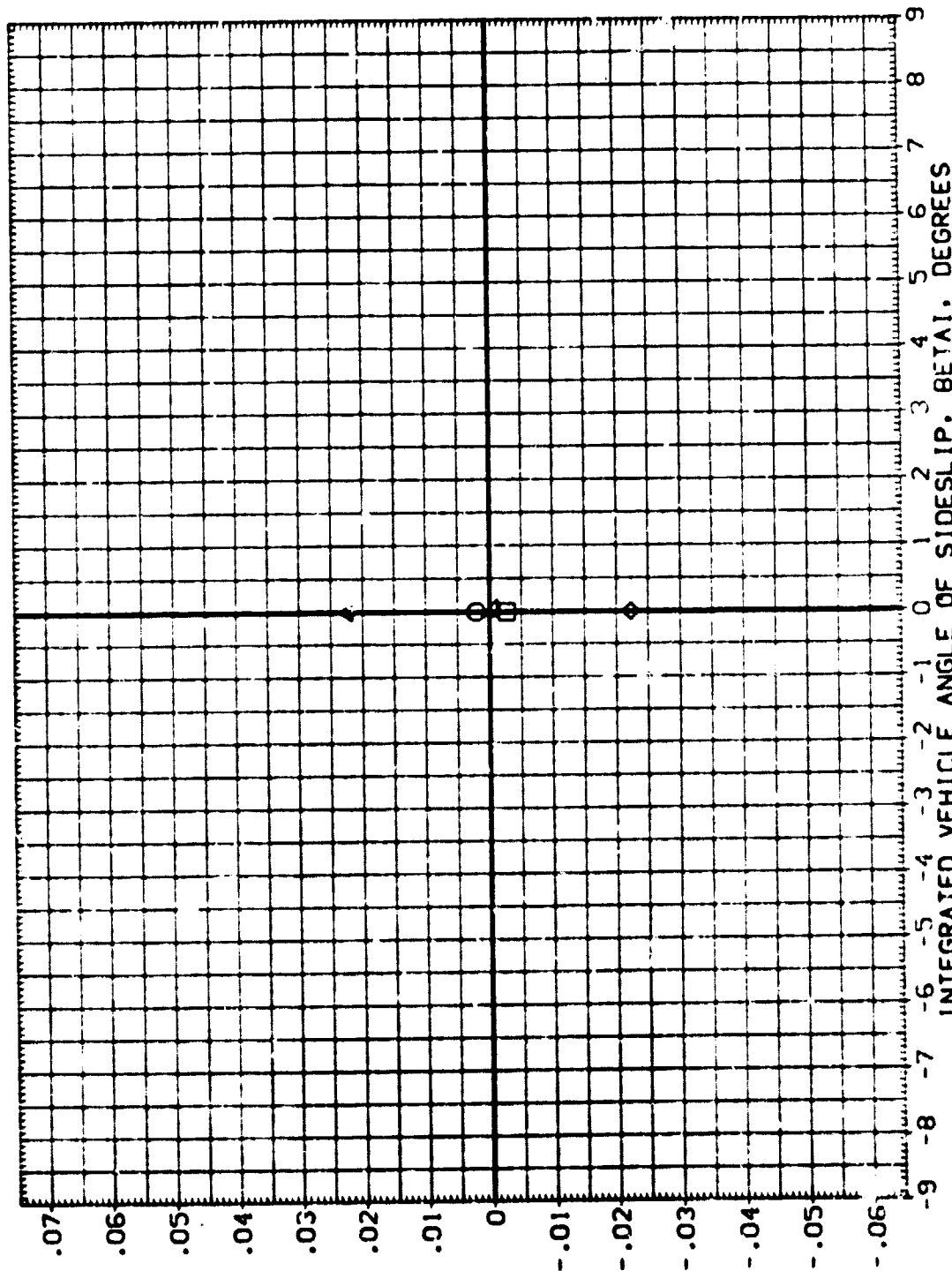


FIG. 20 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS. $M=1.55$ $\text{DEV}=10/-4$

FOREBODY YAWING MOMENT COEFFICIENT, CYNF

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LET046)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	10.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LET146)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LET146)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LET146)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	10.000	-4.000	1.550	.000	YMRP 976.0000 IN.
(LET146)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	10.000	-4.000	1.550	.000	ZMRP 400.0000 IN.
						SCALE .0300

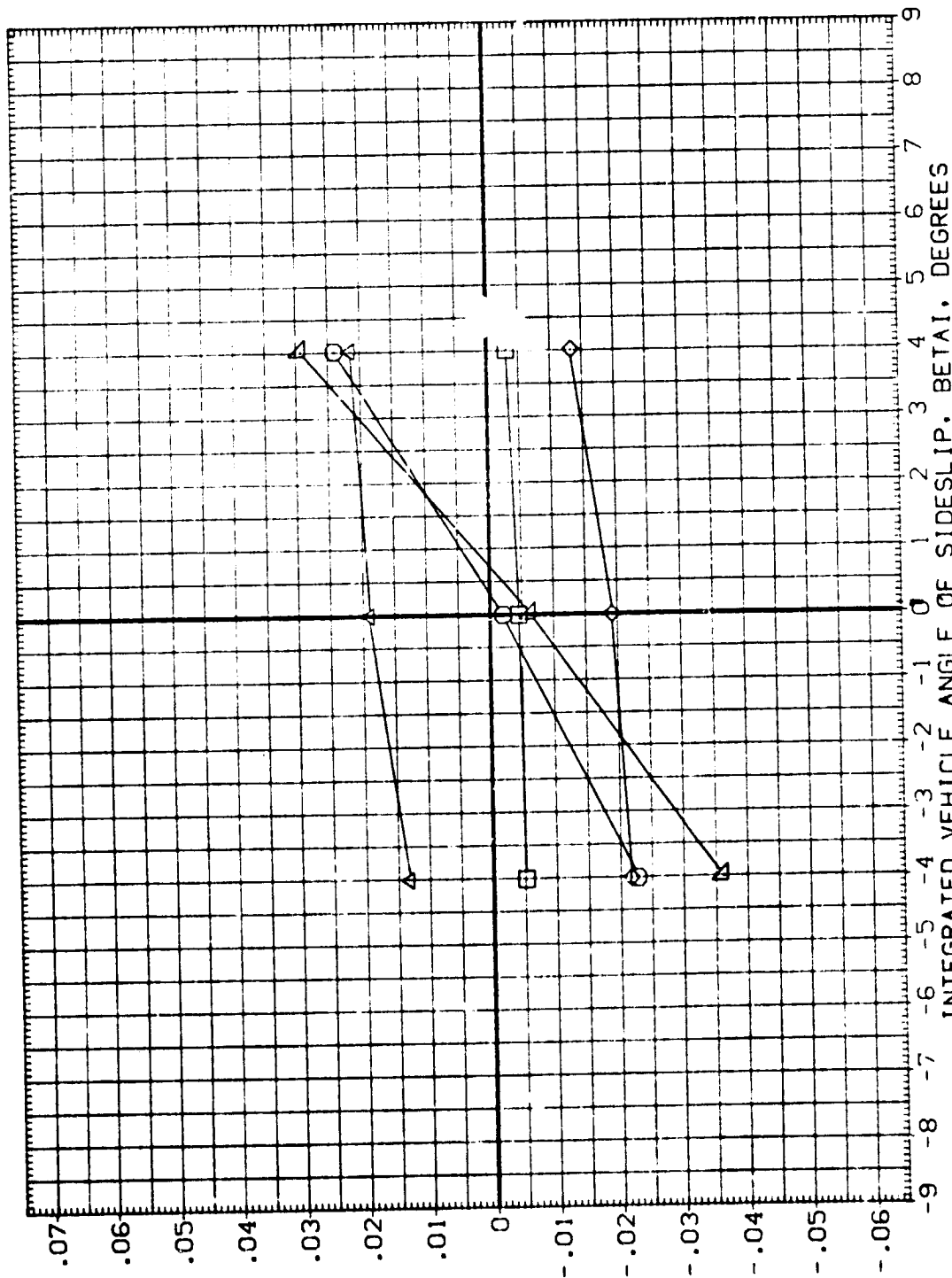


FIG. 20 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=10/-4
(F) ALPHA= 4.00 PAGE 440

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(LE1046)	AME S97-019C (A81) LVAP ORBITER-ALL HL SEALED	10.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LE1146)	AME S97-019C (A81) LVAP TANK - ALL HL SEALED	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LE1146)	AME S97-019C (A81) LVAP L-SPB - ALL HL SEALED	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LE1146)	AME S97-019C (A81) LVAP P-LPB ALL HL SEALED	10.000	-4.000	1.550	.000	YMRP 976.0000 IN.
(LE1146)	AME S97-019C (A81) LVAP INT VEH ALL HL SEALED	10.000	-4.000	1.550	.000	ZMRP 400.0000 IN.
						SCALE .0300

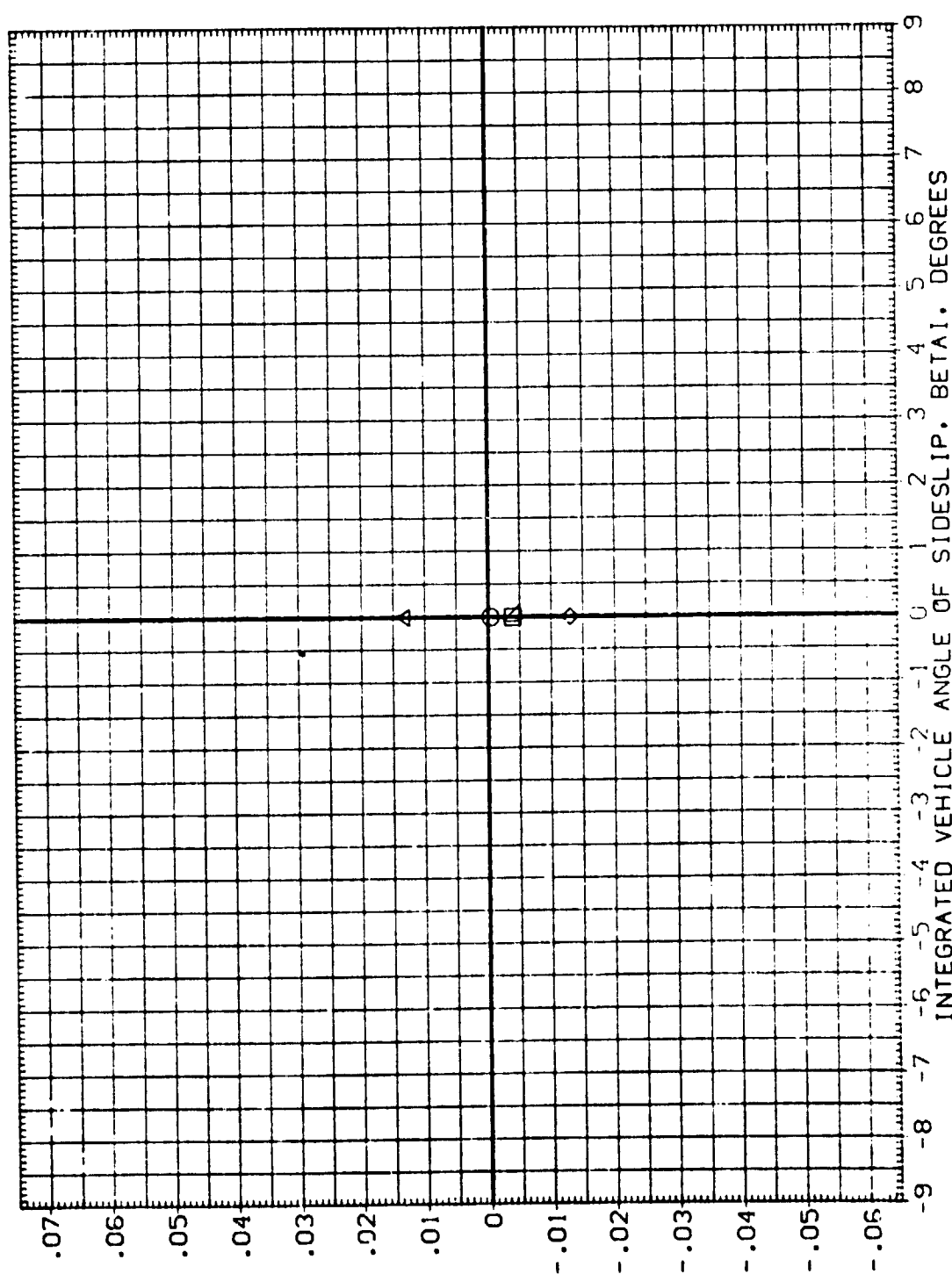


FIG. 20 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=10/-4
(G)ALPHA= 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LE1046)	AMES97-019(1A81) LVAP ORBITTER-ALL HL SEALED	10.000	-4.000	1.550	.000	GREF 2690.0000 SO.FT.
(LE1146)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	10.000	-4.000	1.550	.000	LPEF 1297.0000 IN.
(LE1145)	AMES97-019(1A81) LVAP L-SPB - ALL HL SEALED	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LE1146)	AMES97-019(1A81) LVAP R-LPB - ALL HL SEALED	10.000	-4.000	1.550	.000	XMRP 976.0000 IN. XT
(LE1146)	AMES97-019(1A81) LVAP INIT VEH ALL HL SEALED	10.000	-4.000	1.550	.000	YMRP 400.0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

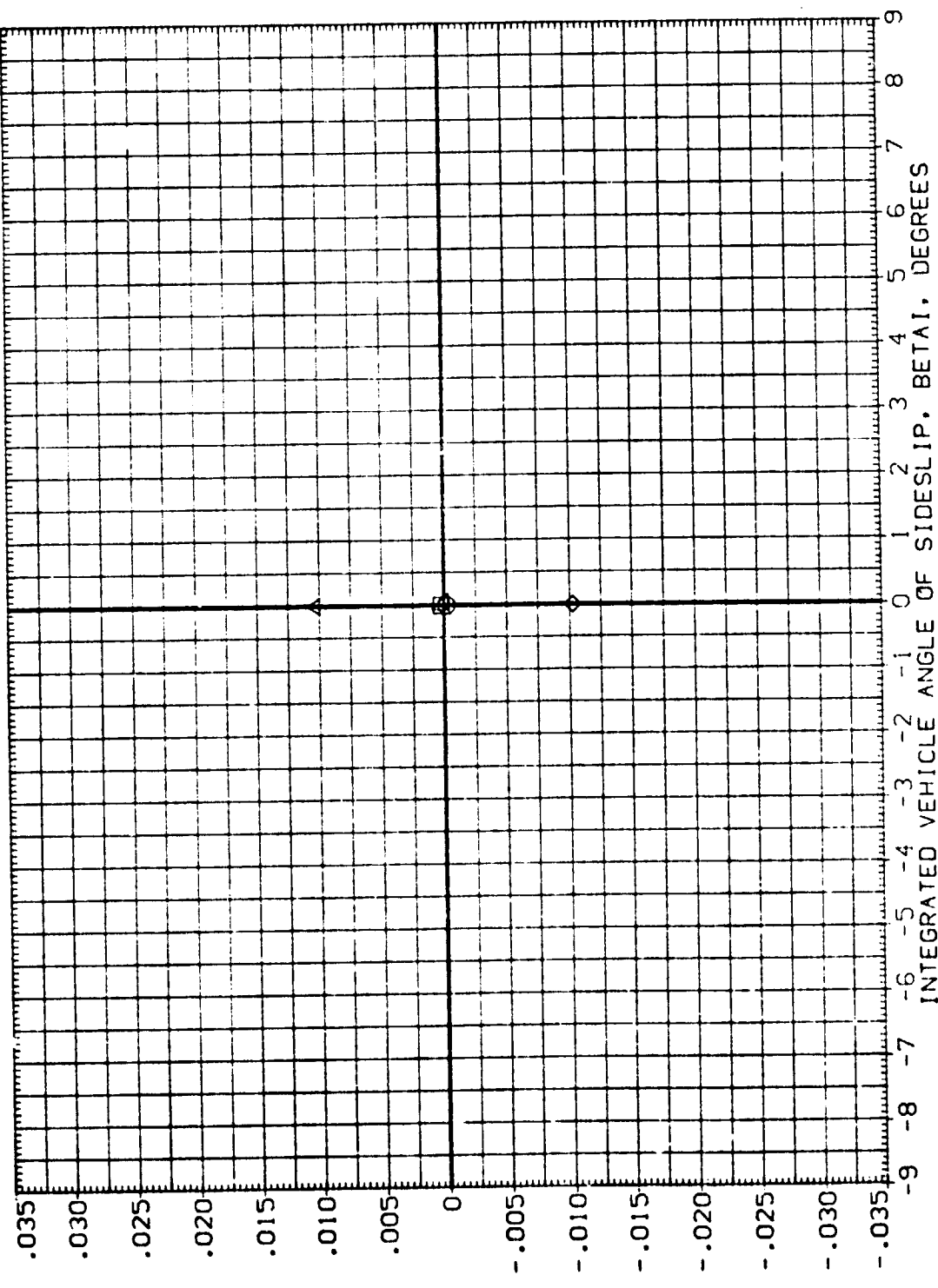


FIG. 20 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=10/-4
 (A) ALPHA = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDRK	REFERENCE INFORMATION
(LET046)	AMES97-019(1A81) LVAP CRBITTER-ALL HL SEALED	10.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LET146)	AMES97-019(1A81) LVAP TAP - ALL HL SEALED	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LET146)	AMES97-019(1A81) LVAP L-SPB - ALL HL SEALED	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LET146)	AMES97-019(1A81) LVAP P-LRB ALL HL SEALED	10.000	-4.000	1.550	.000	XMRP 976.0000 IN. XT
(LET146)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	10.000	-4.000	1.550	.000	YMRP 400.0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

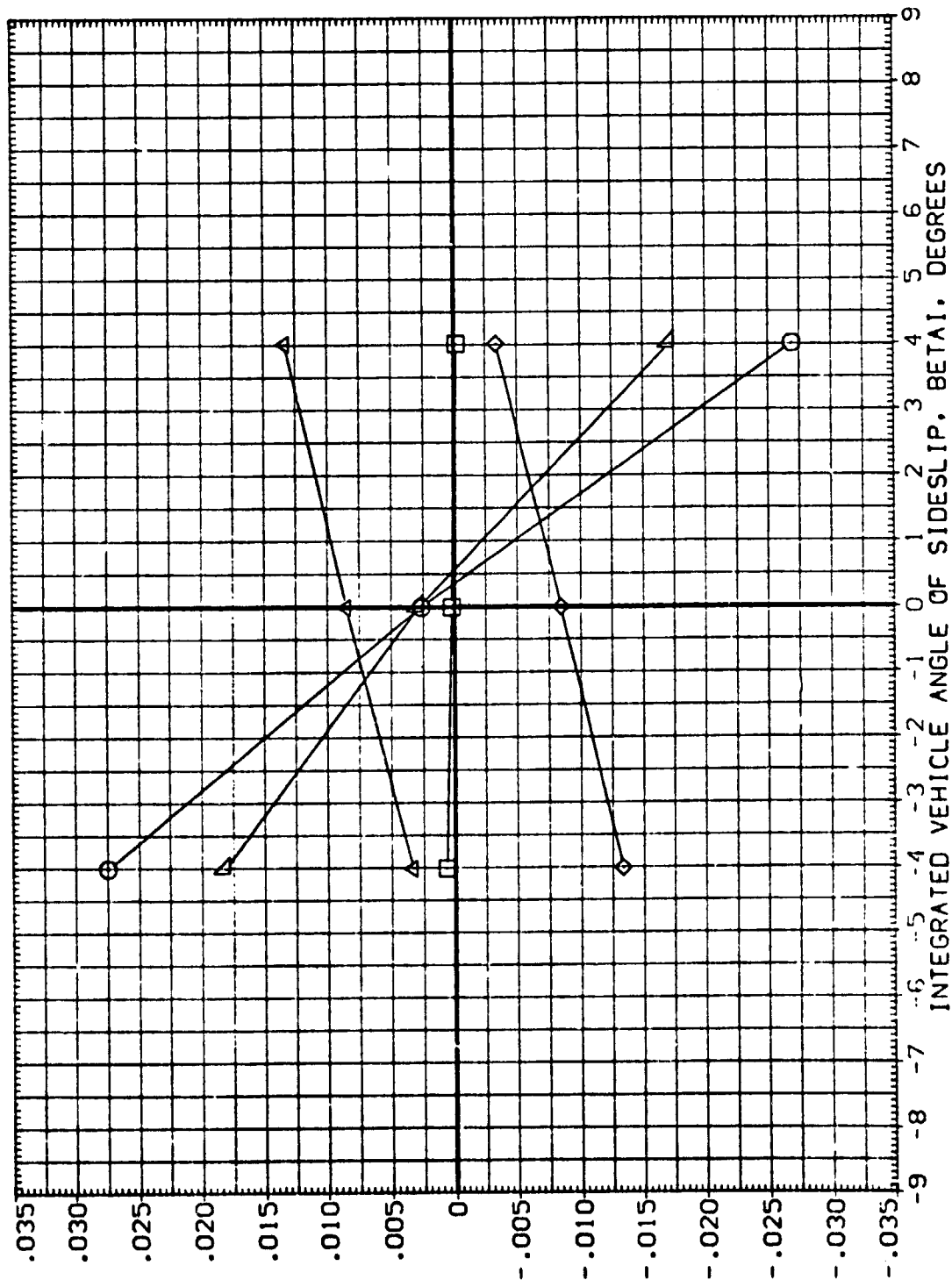


FIG. 20 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=10/-4

(B) ALPHA = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPOBRK	REFERENCE INFORMATION
(LET046)	AMES97-019(1A81) LVAP ORBITER-ALL HL SEALED	10.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LET146)	AMES97-013(1A81) LVAP TANK - ALL HL SEALED	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LET146)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LET146)	AMES97-019(1A81) LVAP R-LRB - ALL HL SEALED	10.000	-4.000	1.550	.000	XHRP 976.0000 IN. XT
(LET146)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	10.000	-4.000	1.550	.000	ZHRP 400.0000 IN. YT
						SCALE .0300

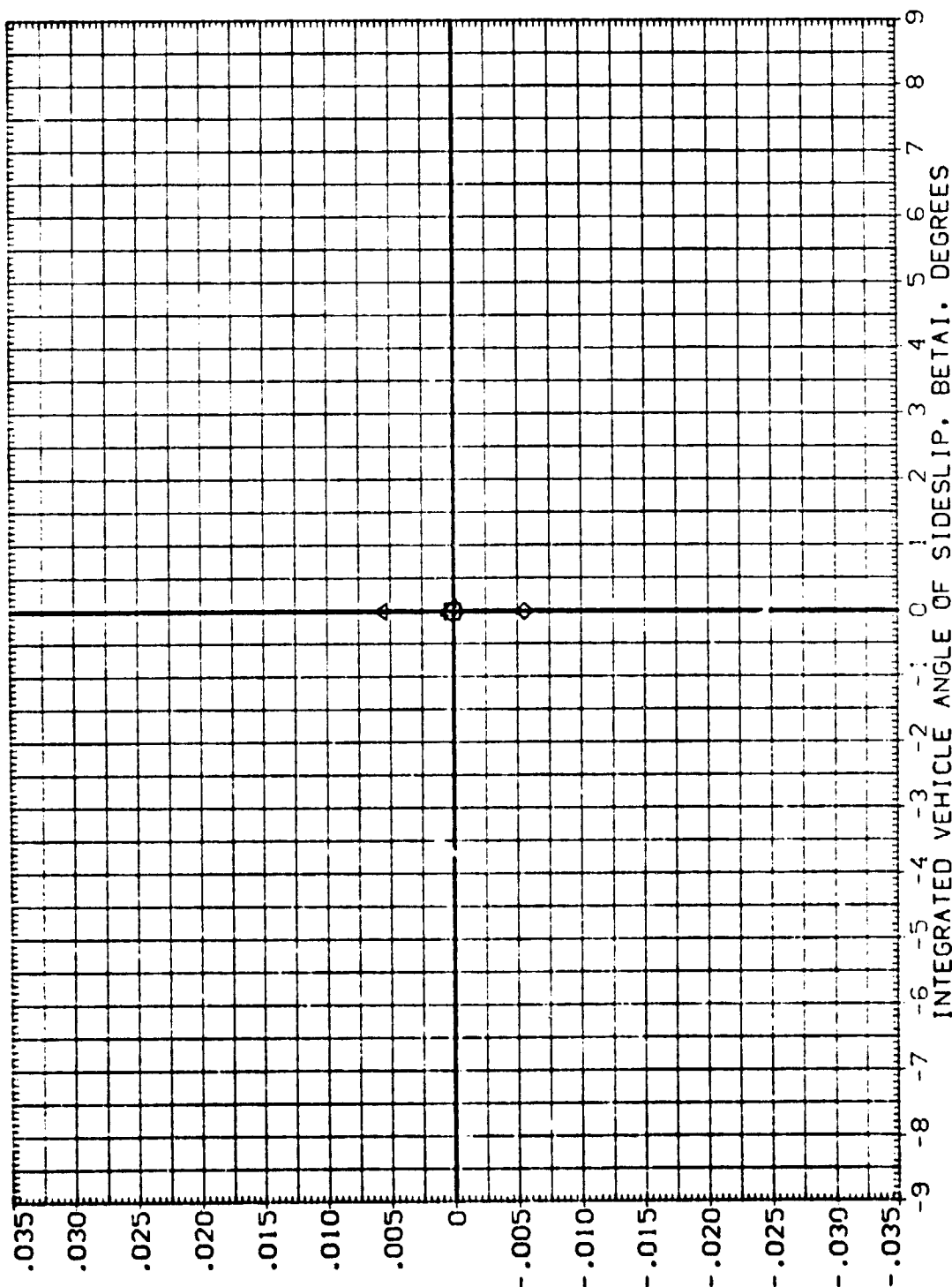


FIG. 20 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=1.55$ $DEV=10/-4$

(C)ALPHA= -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LE1046)	AME597-019(1A81) LVAP CRB1TER-ALL HL SEALED	10.000	-4.000	1.550	.000	SREF 2690.0000 SO.FT.
(LE1146)	AME597-019(1A81) LVAP TANK - ALL HL SEALED	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LE1L46)	AME597-019(1A81) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LE1R46)	AME597-019(1A81) LVAP R-LRB - ALL HL SEALED	10.000	-4.000	1.550	.000	XMRP 976.0000 IN. XT
(LE1146)	AME597-019(1A81) LVAP INT VEH ALL HL SEALED	10.000	-4.000	1.550	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

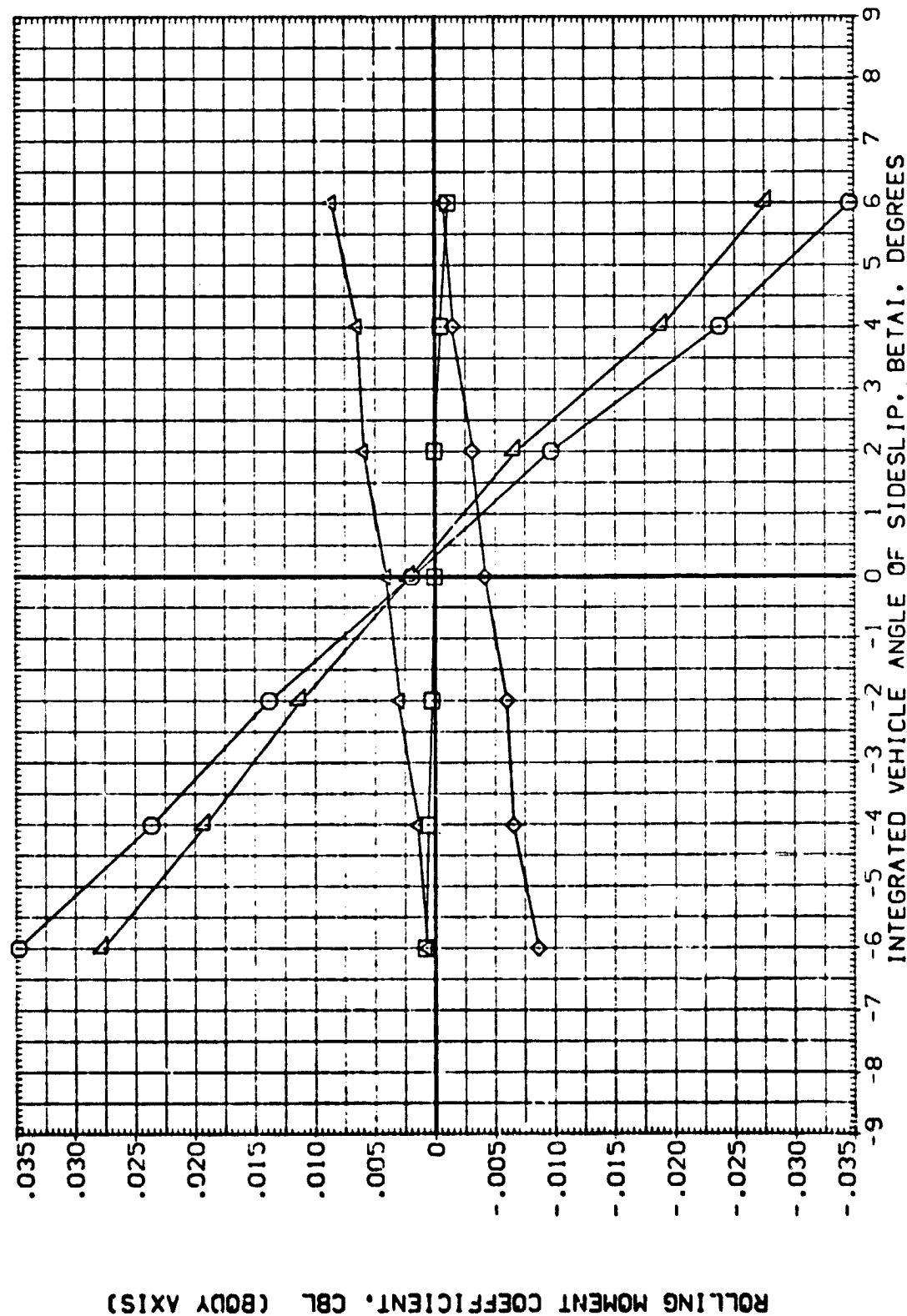


FIG. 20 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=1.55$ $DEV=10/-4$

(D) ALPHA = .00

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DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDRK	REFERENCE INFORMATION
(LETO46)	Q	AMES97-019(IAB1) LVAP CRBITTER-ALL HL SEALED	10.000	-4.000	1.550	.000	SRFF 2690.0000
(LEIT46)	X	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	10.000	-4.000	1.550	.000	LREF 1297.0000
(LEIT46)	X	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	1.550	.000	BREF 1297.0000
(LEIR46)	X	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	10.000	-4.000	1.550	.000	YMRP 976.0000
(LEIT46)	X	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	10.000	-4.000	1.550	.000	ZMRP 400.0000
							SCALE .0300

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

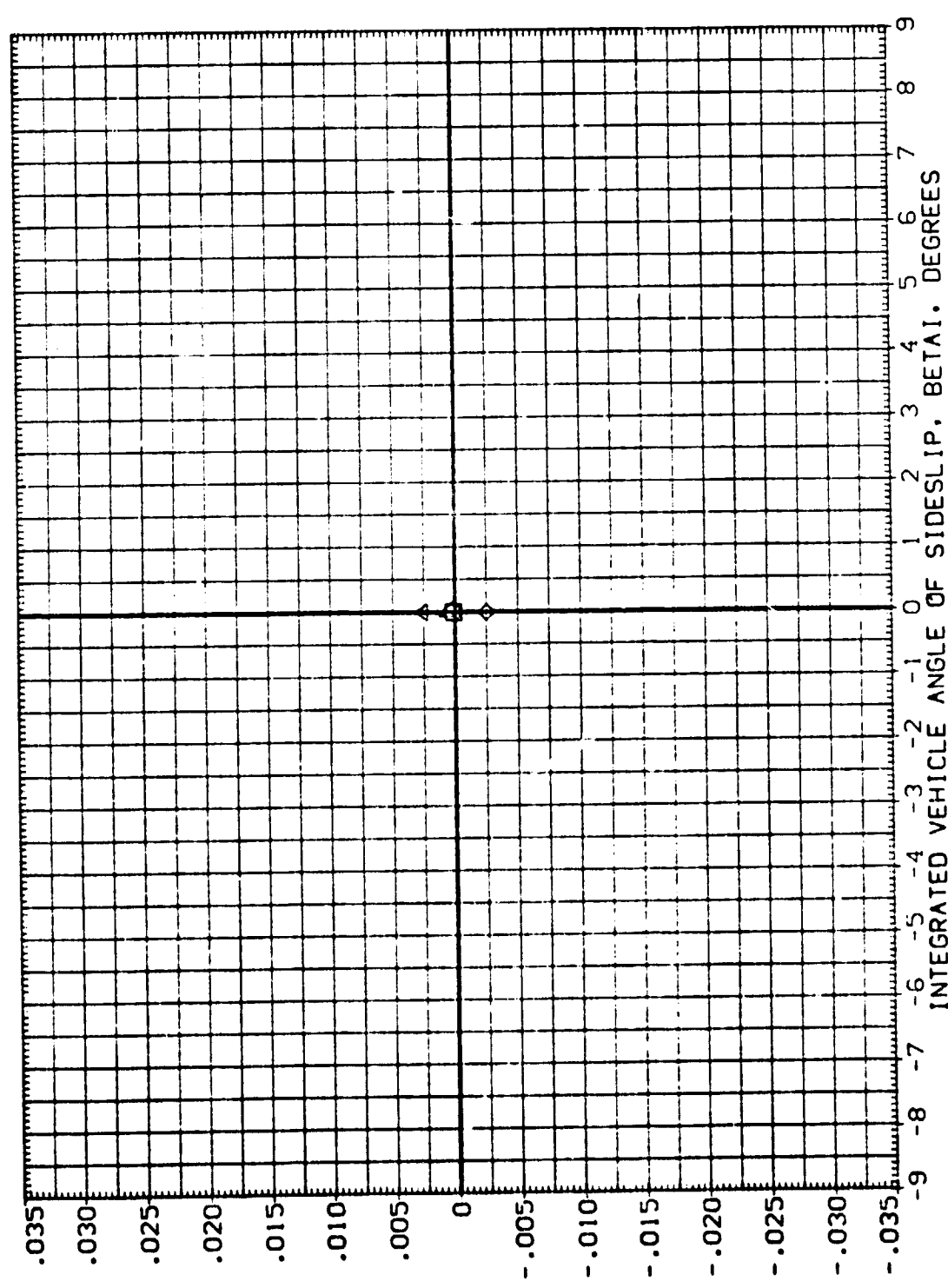


FIG. 20 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=10/-4

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(LE1046)	AMES97-019(1AB1) LVAP ORBITTER-ALL HL SEALED	10.000	-4.000	1.550	.000	SREF 2690.0000 SO.FT.
(LE1146)	AMES97-019(1AB1) LVAP TANK - ALL HL SEALED	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LE1L46)	AMES97-019(1AB1) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LE1R46)	AMES97-019(1AB1) LVAP R-LRB - ALL HL SEALED	10.000	-4.000	1.550	.000	XMRP 976.0000 IN.
(LE1T46)	AMES97-019(1AB1) LVAP INT VEH ALL HL SEALED	10.000	-4.000	1.550	.000	YMRP 400.0000 IN.
						SCALE .0300

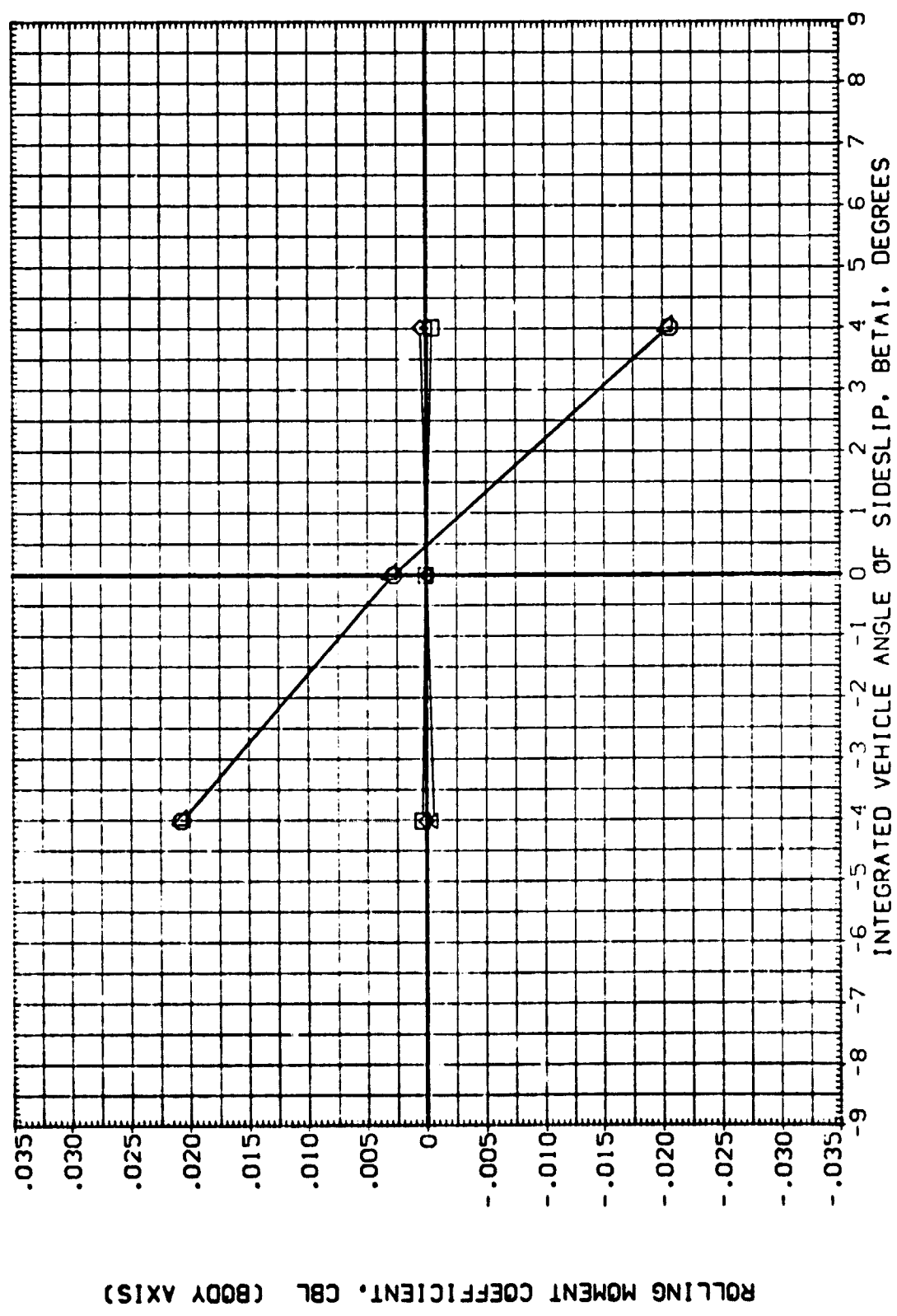


FIG. 20 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=10/-4

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(LET046)	APES97-019C(IAB1) LVAP	10.000	-4.000	1.550	.000	SREF 2690.0000 SO.FT.
(LET146)	APES97-019C(IAB1) LVAP	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LET146)	APES97-019C(IAB1) LVAP	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LET146)	APES97-019C(IAB1) LVAP	10.000	-4.000	1.550	.000	XMRP 976.0000 IN. XT
(LET146)	APES97-019C(IAB1) LVAP	10.000	-4.000	1.550	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

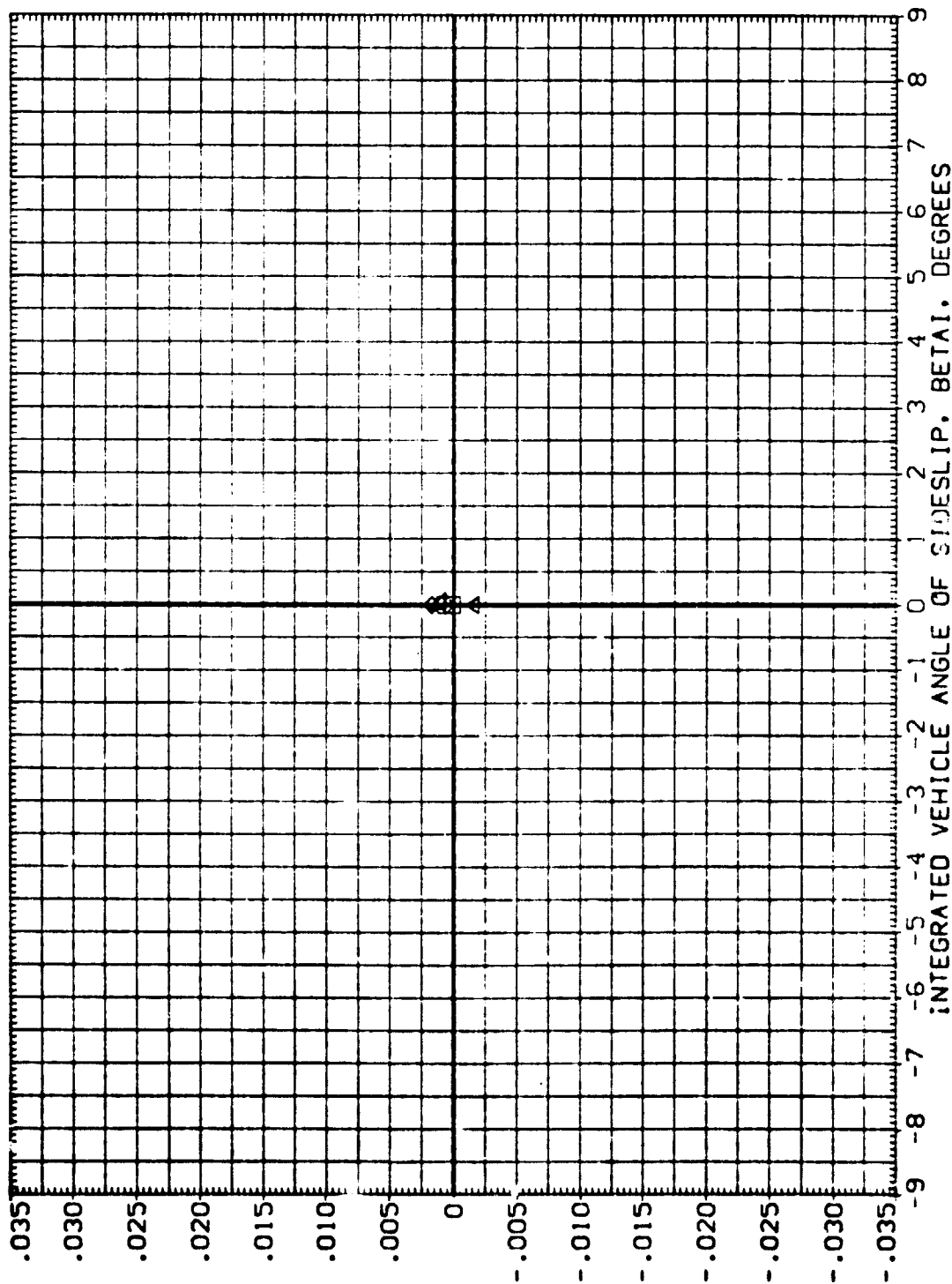


FIG. 20 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=10/-4

(G) ALPHA = 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	"ACH	SPOBRK	REFERENCE INFORMATION	
(LETO46)	AME597-019(1A81) LVAP ORBITTER-ALL HL SEALED	10.000	-4.000	1.550	.000	SREF	2690.0000 SQ.FT.
(LETT46)	AME597-019(1A81) LVAP TANK - ALL HL SEALED	10.000	-4.000	1.550	.000	LREF	1297.0000 IN.
(LETL46)	AME597-019(1A81) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	.550	.000	BREF	1297.0000 IN.
(LETR46)	AME597-019(1A81) LVAP R-LRB - ALL HL SEALED	10.000	-4.000	.550	.000	XMRP	976.0000 IN. XT
(LETT46)	AME597-019(1A81) LVAP INT VEH ALL HL SEALED	10.000	-4.000	1.550	.000	ZMRP	400.0000 IN. VT
						SCALE	.0300

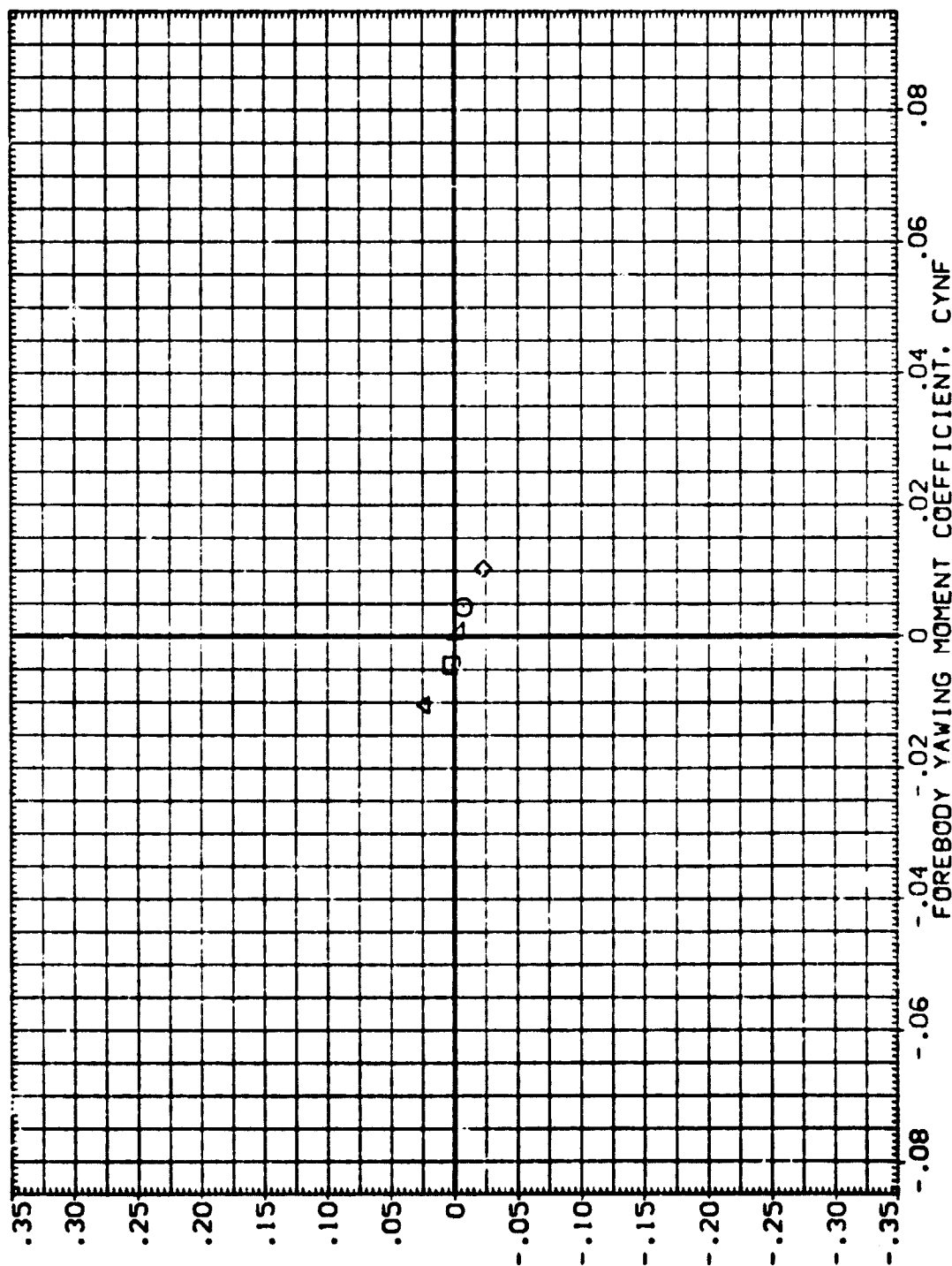


FIG. 20 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=1.55$ DEV=10/-4
(A) ALPHA = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LE1045)	AME597-019(1AB1) LVAP ORBITTER-ALL ML SCALED	10.000	-4.000	1.550	.000	SREF 2690.0000 50.FT.
(LE1145)	AME597-019(1AB1) LVAP TANK - ALL ML SCALED	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LE1245)	AME597-019(1AB1) LVAP L-5RB - ALL ML SCALED	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LE1345)	AME597-019(1AB1) LVAP R-LRB - ALL ML SCALED	10.000	-4.000	1.550	.000	XMRP 976.0000 IN.
(LE1445)	AME597-019(1AB1) LVAP INT VEH ALL ML SCALED	10.000	-4.000	1.550	.000	YMRP 400.0000 IN.
(LE1545)						ZMRP 400.0000 IN.
						SCALE .0300

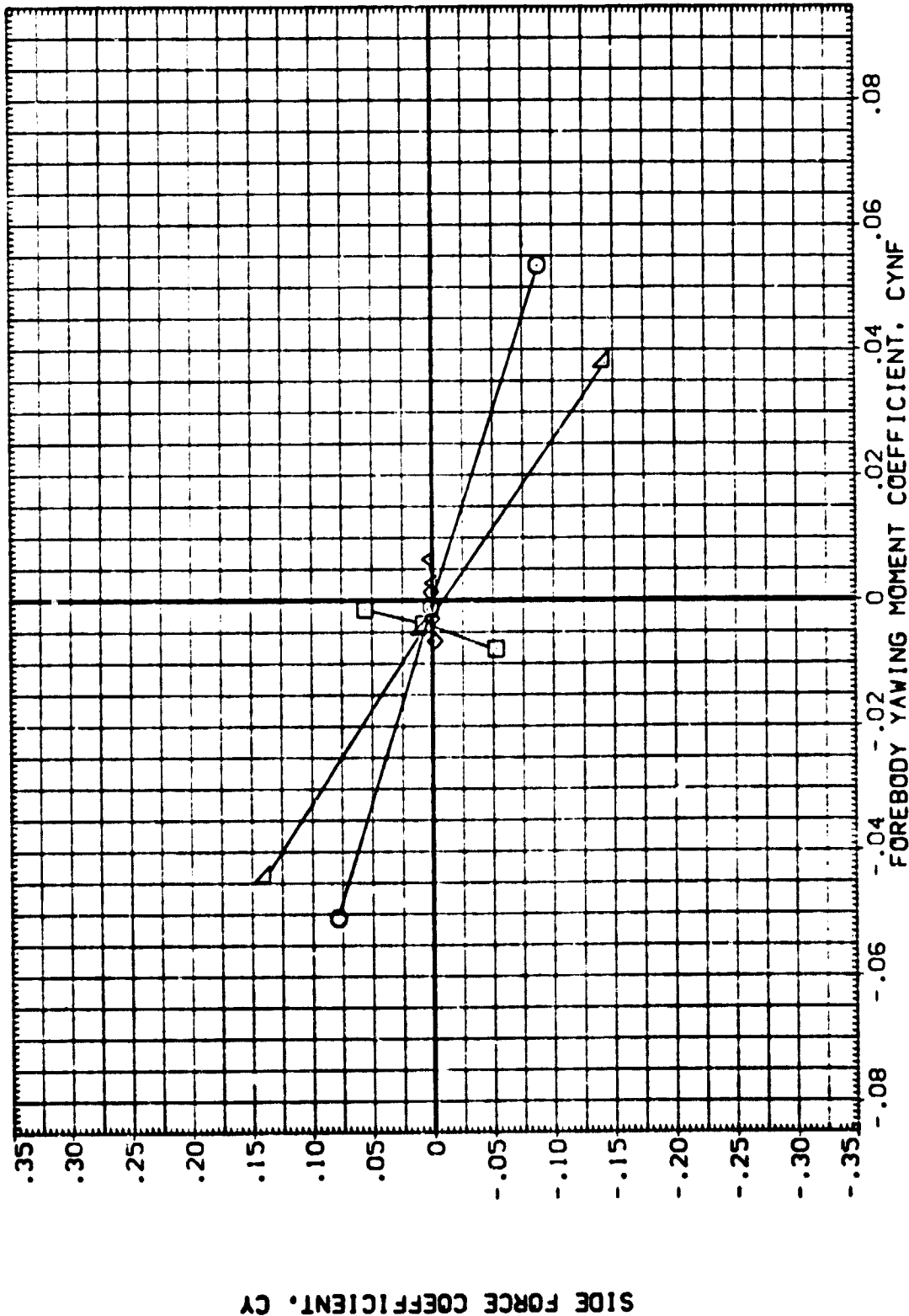


FIG. 20 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=1.55$ $DEV=10/-4$

(B)ALPHA1= -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPOBRK	REFERENCE INFORMATION
(LE1046)	AMES97-019(1A81) LVAP	10.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LE1746)	AMES97-019(1A81) LVAP	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LE1446)	AMES97-019(1A81) LVAP	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LE1446)	AMES97-019(1A81) LVAP	10.000	-4.000	1.550	.000	XMRP 976.0000 IN.
(LE1446)	AMES97-019(1A81) LVAP	10.000	-4.000	1.550	.000	YMRP 400.0000 IN.
(LE1446)	AMES97-019(1A81) LVAP	10.000	-4.000	1.550	.000	ZMRP 400.0000 IN.
						SCALE .0300

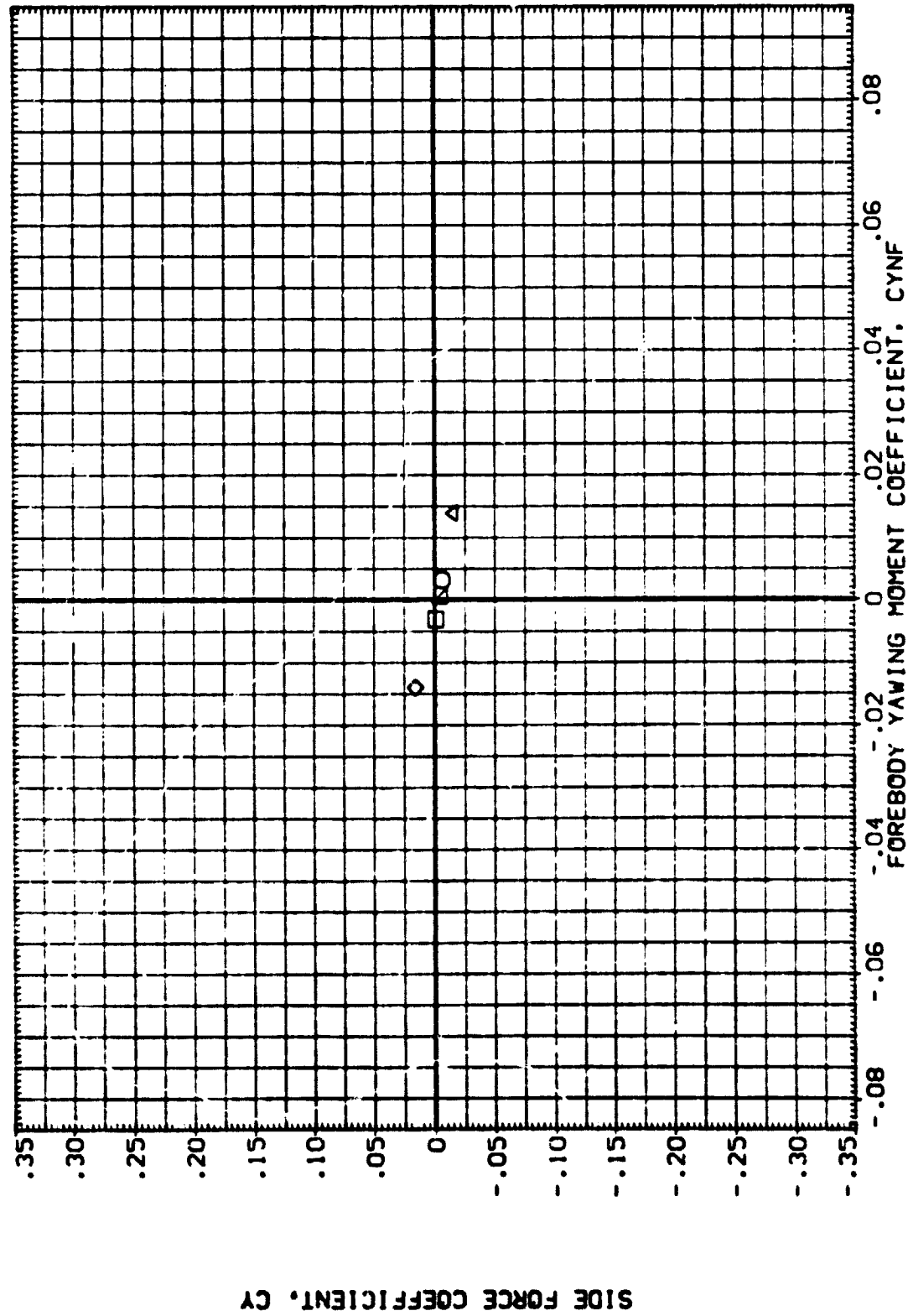


FIG. 20 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=10/-4

(C)ALPHA1= -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-CB	MACH	SPOBRK	REFERENCE INFORMATION
(LE1046)	AME597-019(IAB1) LVAP ORBITER-ALL ML SEALED	10.000	-4.000	1.550	.000	SREF 2690.0000 50.FT.
(LE1146)	AME597-019(IAB1) LVAP TANK - ALL ML SEALED	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LE1146)	AME597-019(IAB1) LVAP L-5RB - ALL ML SEALED	10.000	-4.000	1.550	.000	BREF 1297.0000 IN. XT
(LE1146)	AME597-019(IAB1) LVAP R-LRB - ALL ML SEALED	10.000	-4.000	1.550	.000	KMRP 976.0000 IN. YT
(LE1146)	AME597-019(IAB1) LVAP INT VEH ALL ML SEALED	10.000	-4.000	1.550	.000	YMRP 400.0000 IN. ZT
						SCALE .0300

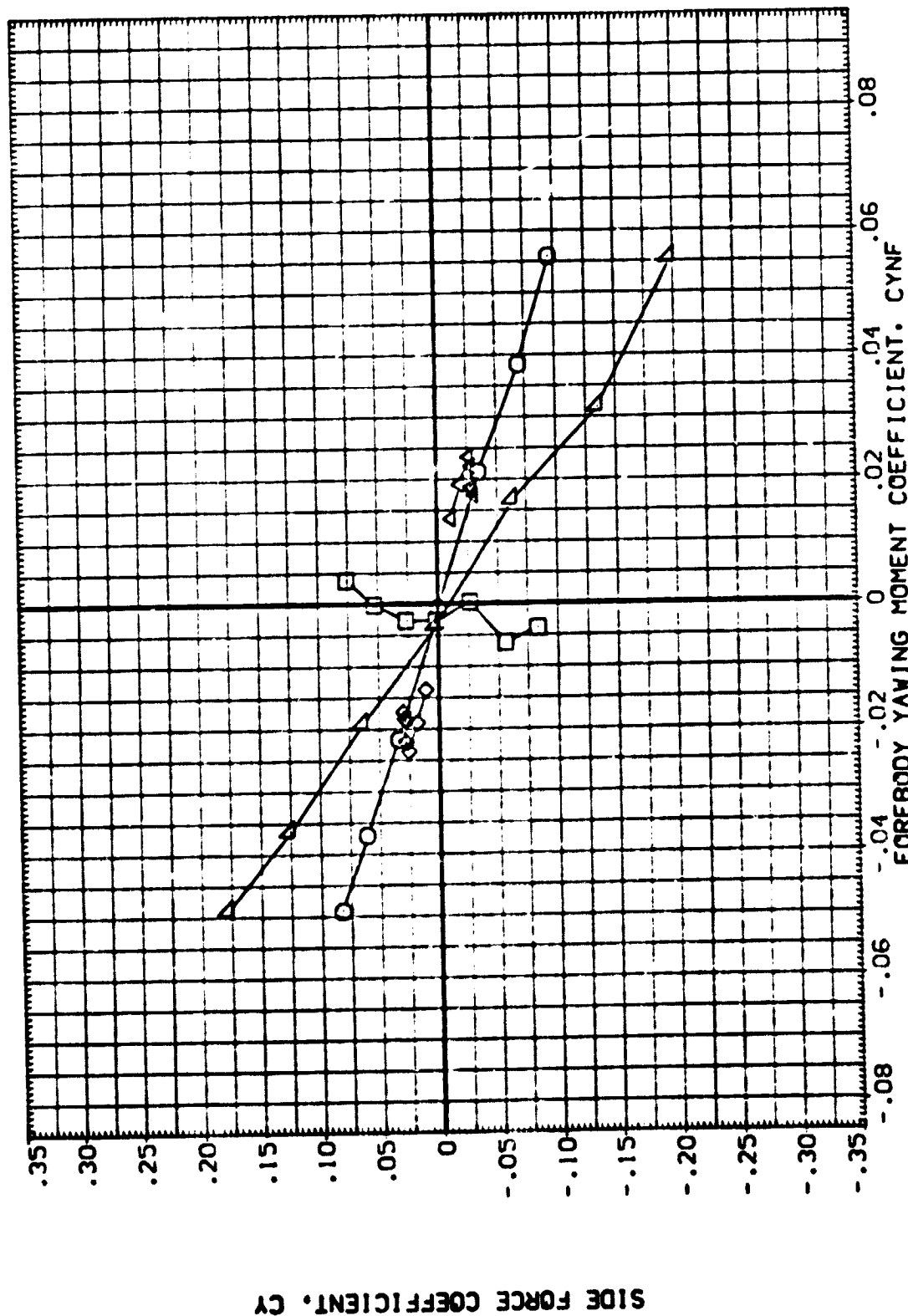


FIG. 20 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=1.55$ DEV=10/-4
 (O) ALPHA= .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(LE1048)	AMES97-019(IAB1) LVAP ORBITER-ALL ML SEALED	10.000	-4.000	1.550	.000	SREF 2690.0000 SO.FT.
(LE1146)	AMES97-019(IAB1) LVAP TANK - ALL ML SEALED	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LE1146)	AMES97-019(IAB1) LVAP R-LRB - ALL ML SEALED	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LE1146)	AMES97-019(IAB1) LVAP INT VEN ALL ML SEALED	10.000	-4.000	1.550	.000	YMRP 976.0000 IN. YI
						ZMRP .0000 IN. ZI
						SCALE 400 3000

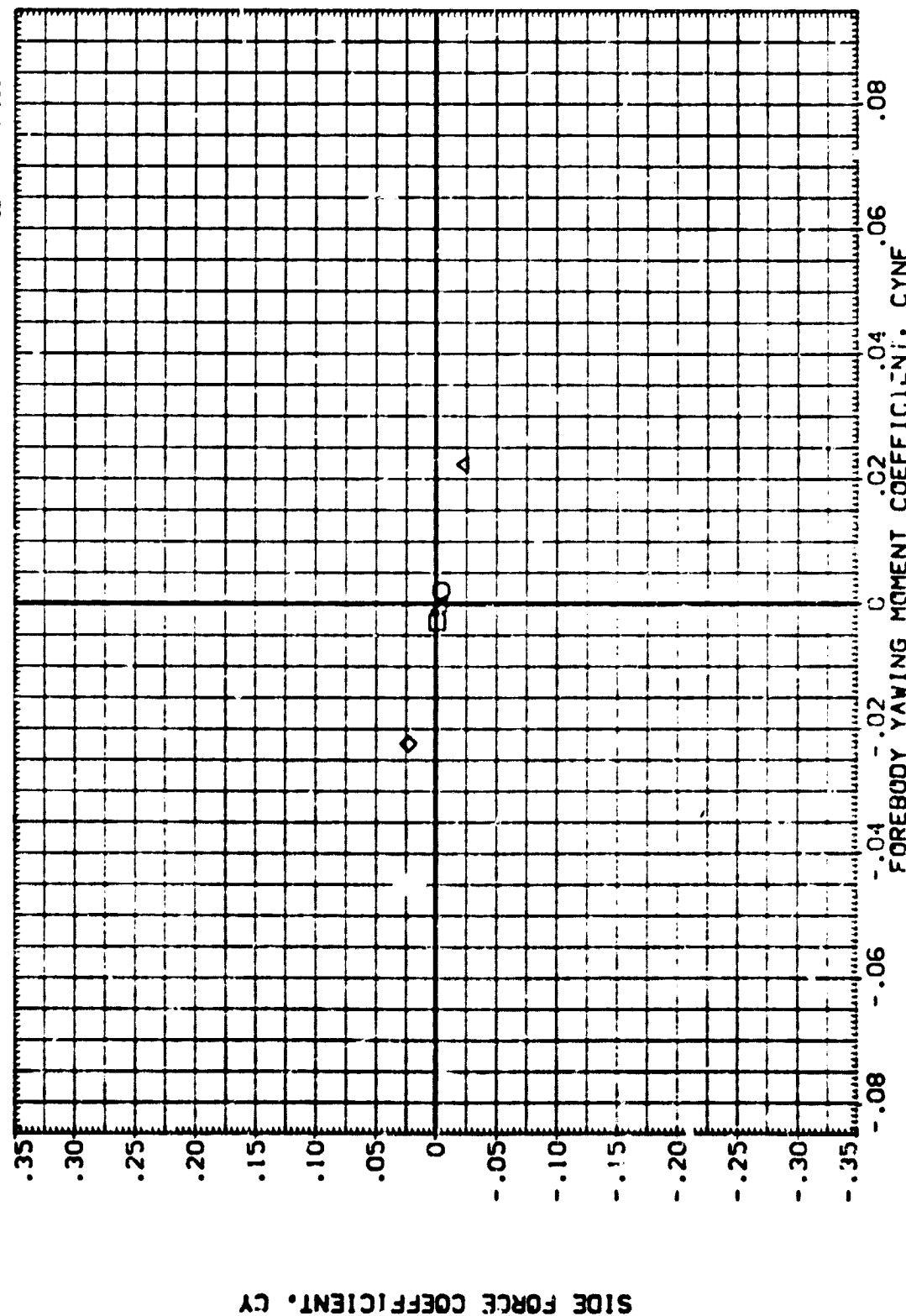


FIG. 20 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS. M=1.55 DEV=10/-4
 (E) ALPHA = 2.00 PAGE 453

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDBRK	REFERENCE INFORMATION
(LETO46)	AMES97-019(IAB1) LVAP SRBITTER-ALL HL SEALED	10.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LEIT46)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LEITL46)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	1.550	.000	GRREF 1297.0000 IN.
(LEITR46)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	10.000	-4.000	1.550	.000	XMRP 976.0000 IN.
(LEIT46)	AMES97-019(IAB1) LVAP INT VFH ALL HL SEALED	10.000	-4.000	1.550	.000	ZMRP 400.0000 IN.
						SCALE .0300

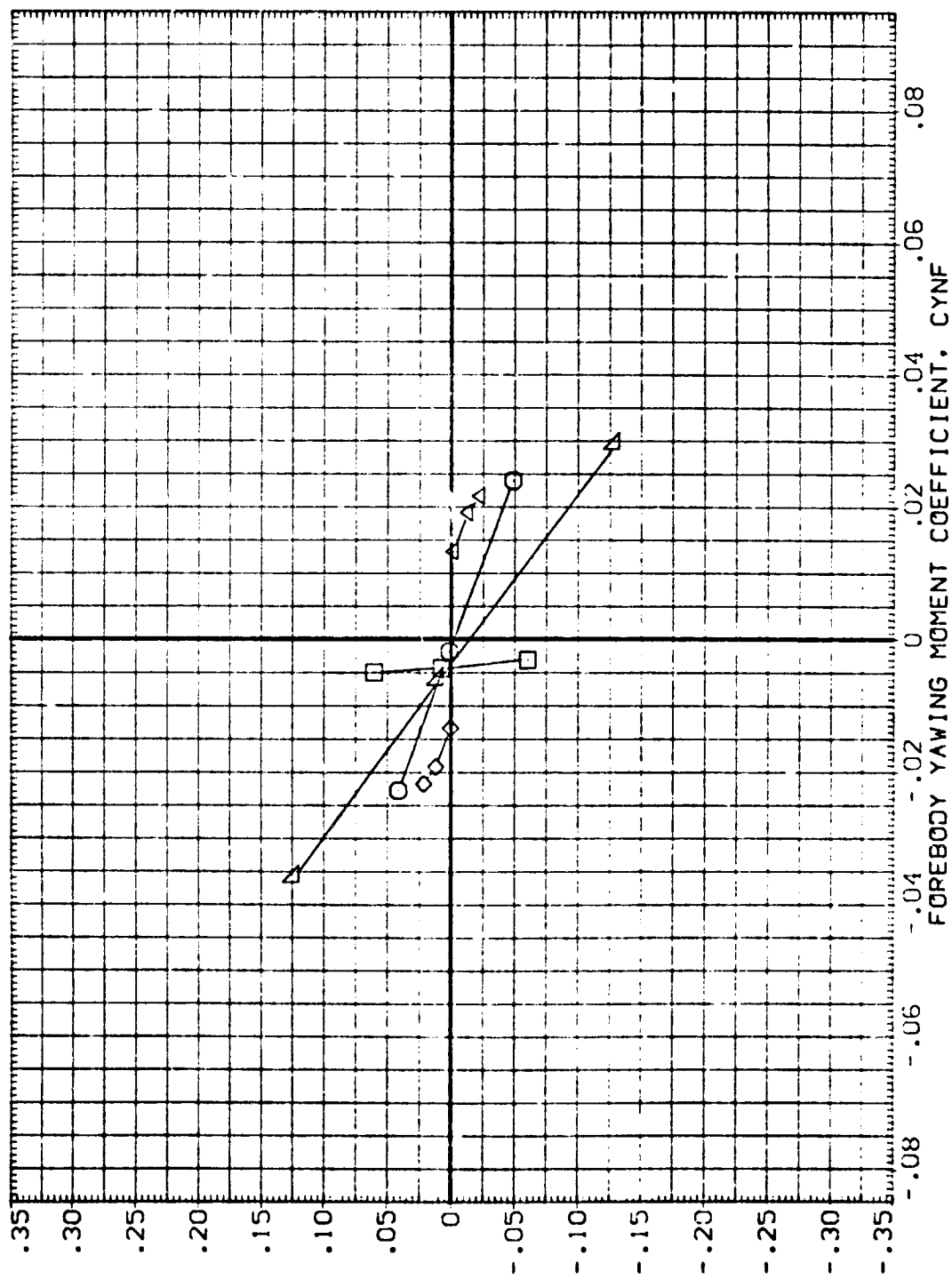


FIG. 20 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=1.55$ $DEV=10/-4$
 (F)ALPHA= 4.00
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ORIGINAL PAGE IS POOR

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(LE1046)	AMES97-019(IAB1) LVAP CRB1TER-ALL HL SEALED	10.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LE1146)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LE1146)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LE1146)	AMES97-019(IAB1) LVAP R-LPB ALL HL SEALED	10.000	-4.000	1.550	.000	YMRP 976.0000 IN. XT
(LE1146)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	10.000	-4.000	1.550	.000	YMRP 400.0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

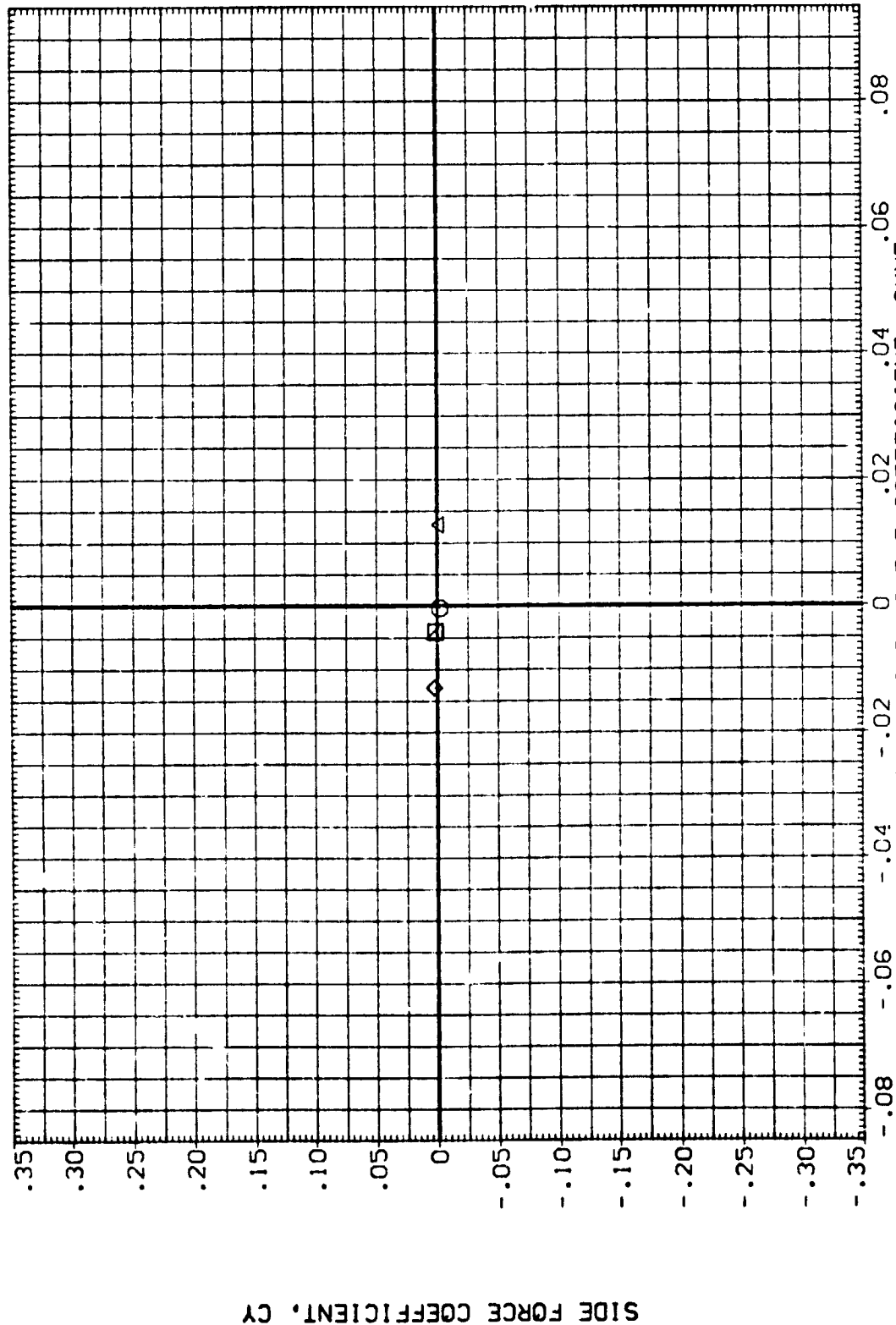


FIG. 20 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=1.55$ $DEV=10/-4$

(G)ALPHA= 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LETO46)	AMES97-019(1A81) LVAP ORBITER-ALL HL SEALED	10.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LETT46)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LETL46)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LETR46)	AMES97-019(1A81) LVAP R-LRB ALL HL SEALED	10.000	-4.000	1.550	.000	XMRP 976.0000 IN.
(LETT46)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	10.000	-4.000	1.550	.000	YMRP .0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

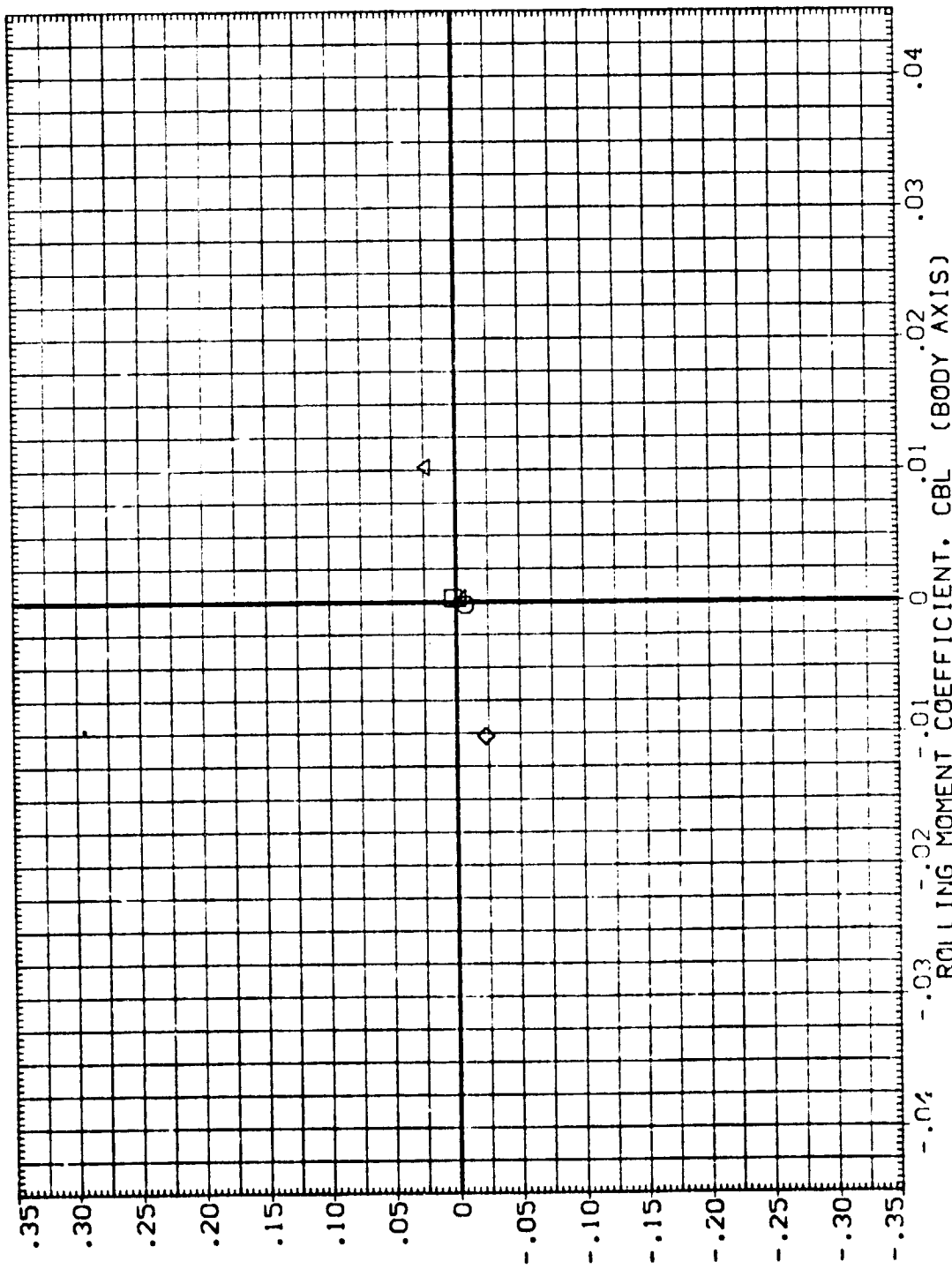


FIG. 20 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=10/-4
 (A) ALPHA = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION			
(LET046)	AMES97-019(IAB1) LVAP ORBITTER-ALL HL SEALED	10.000	-4.000	1.550	.000	SREF	2690.0000	SQ.FT.	
(LET146)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	10.000	-4.000	1.550	.000	LREF	1297.0000	IN.	
(LET146)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	1.550	.000	BREF	1297.0000	IN.	XT
(LET146)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	10.000	-4.000	1.550	.000	XMRP	976.0000	IN.	YT
(LET146)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	10.000	-4.000	1.550	.000	ZMRP	400.0000	IN.	ZT
						SCALE			.0300

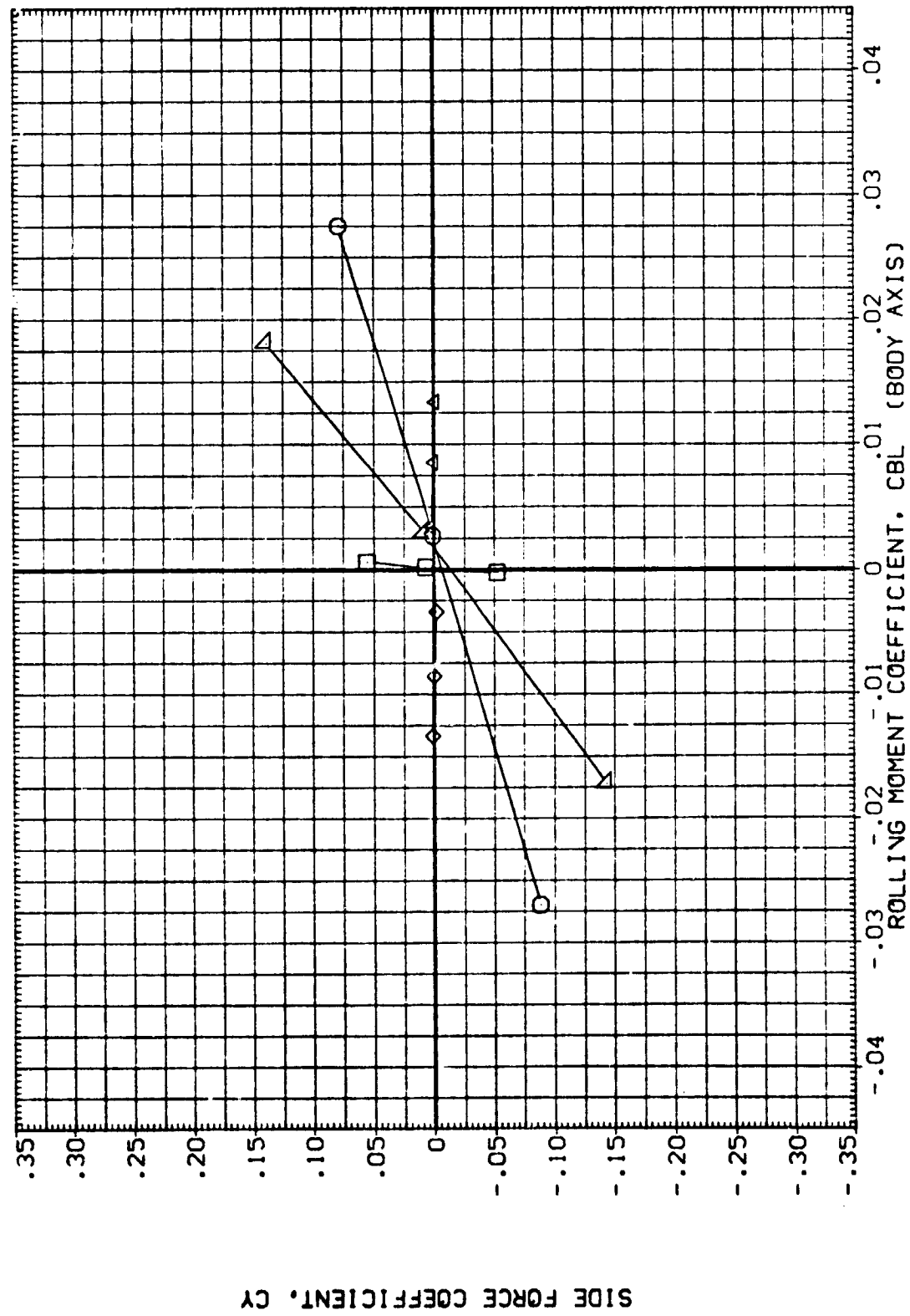


FIG. 20 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=10/-4

(B) ALPHA = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDRK	REFERENCE INFORMATION
(LE1046)	APES97-019C(IAB1) LVAP ORBITER-ALL HL SEALED	10.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LE1146)	APES97-019C(IAB1) LVAP TANK - ALL HL SEALED	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LE1145)	APES97-019C(IAB1) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LE1146)	APES97-019C(IAB1) LVAP R-LRB - ALL HL SEALED	10.000	-4.000	1.550	.000	YMRP 976.0000 IN.
(LE1146)	APES97-019C(IAB1) LVAP INT VEH ALL HL SEALED	10.000	-4.000	1.550	.000	ZMRP 400.0000 IN.
						SCALE .0300

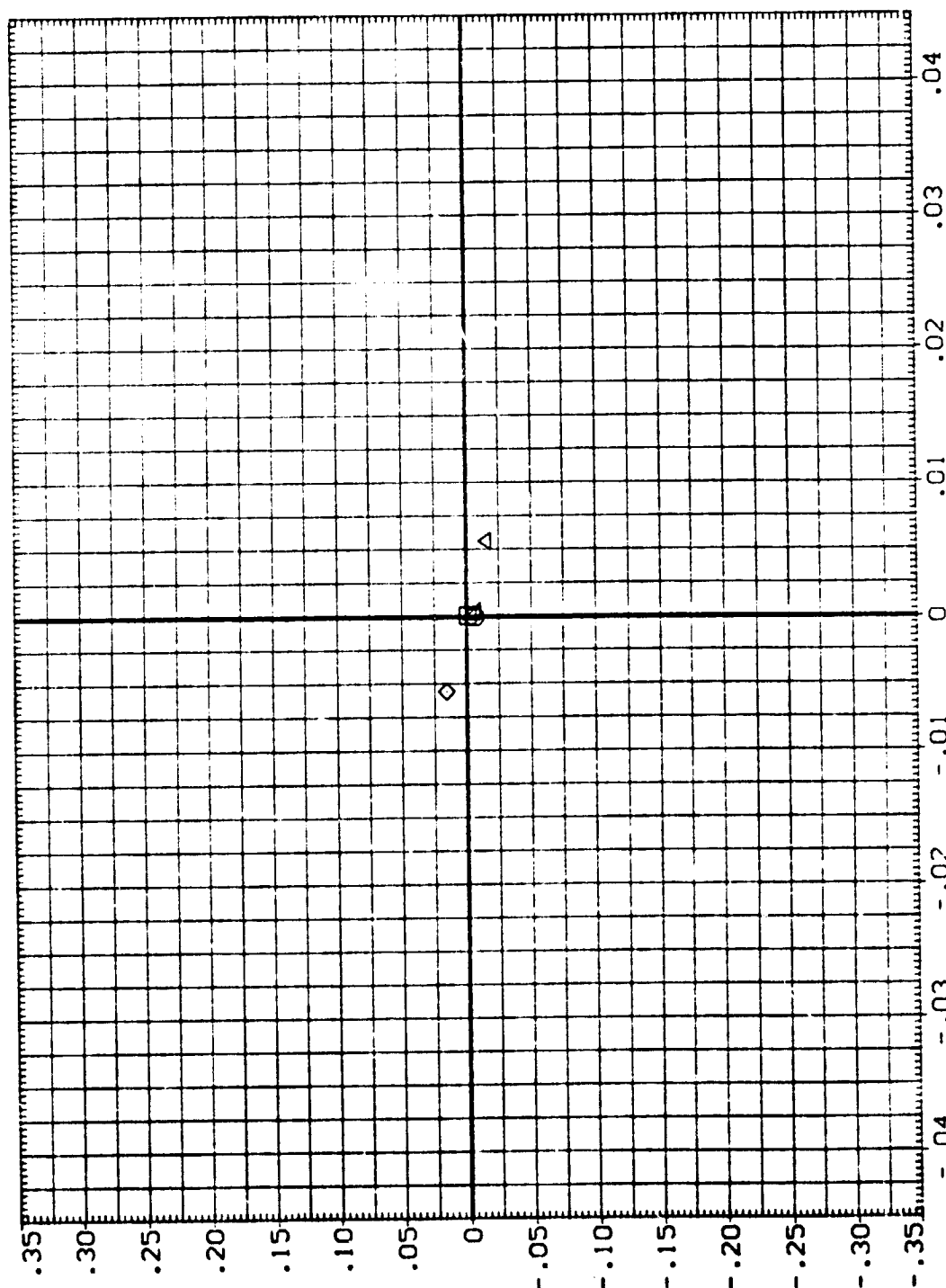


FIG. 20 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=1.55$ $DEV=10/-4$
 (C)ALPHA= -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPOBRK	REFERENCE INFORMATION
(LETO46)	AME597-019(IAB1) LVAP	10.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LETT45)	AME597-019(IAB1) LVAP	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LETL45)	AME597-019(IAB1) LVAP	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LETR46)	AME597-019(IAB1) LVAP	10.000	-4.000	1.550	.000	XMRP 976.0000 IN.
(LETT46)	AME597-019(IAB1) LVAP	10.000	-4.000	1.550	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

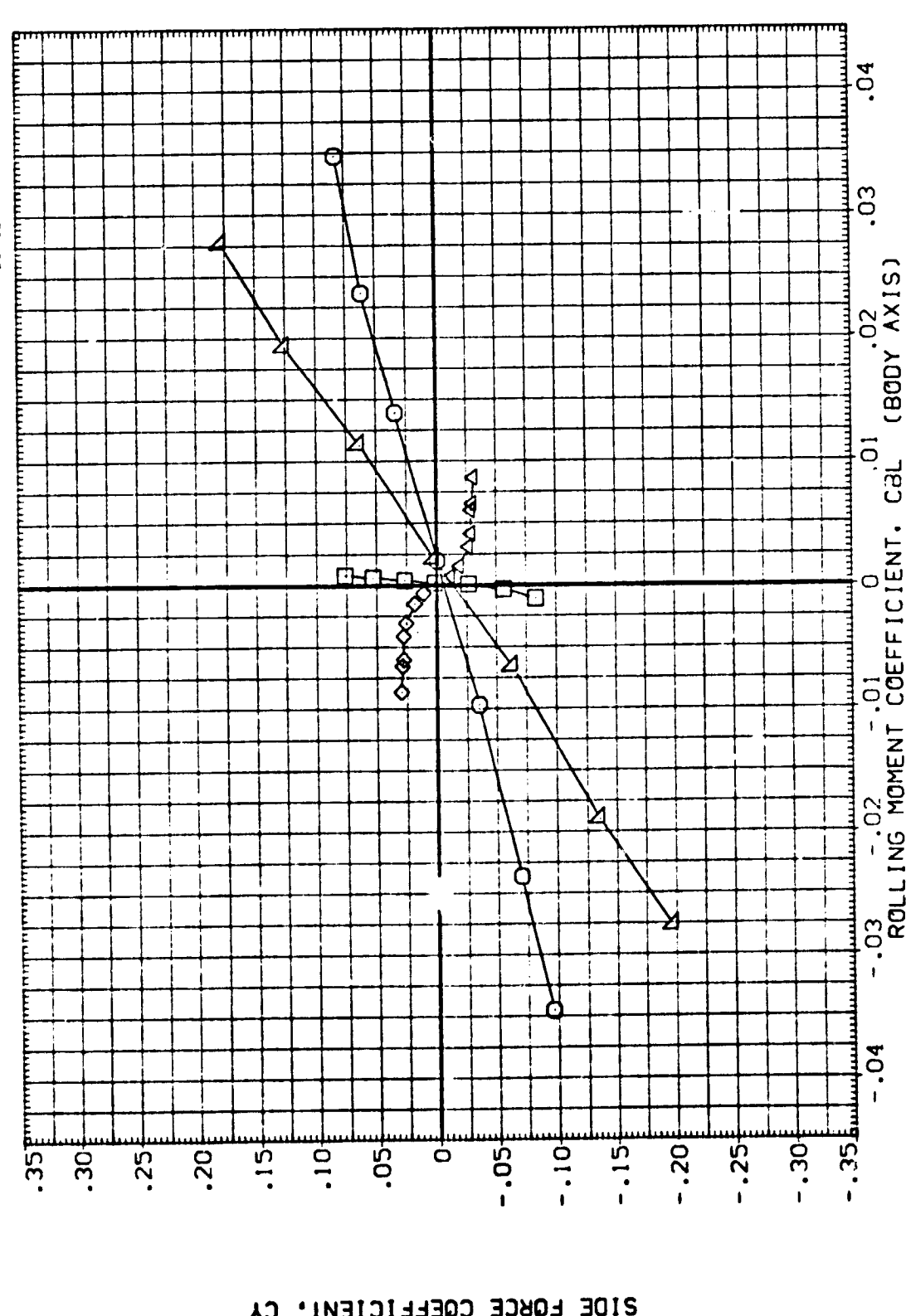


FIG. 20 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=10/-4
 (O) ALPHA = .00
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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(LE046)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	10.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(LE1146)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LE1146)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LE1146)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	10.000	-4.000	1.550	.000	XMRP 976.0000 IN.
(LE1146)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	10.000	-4.000	1.550	.000	YMRP .0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

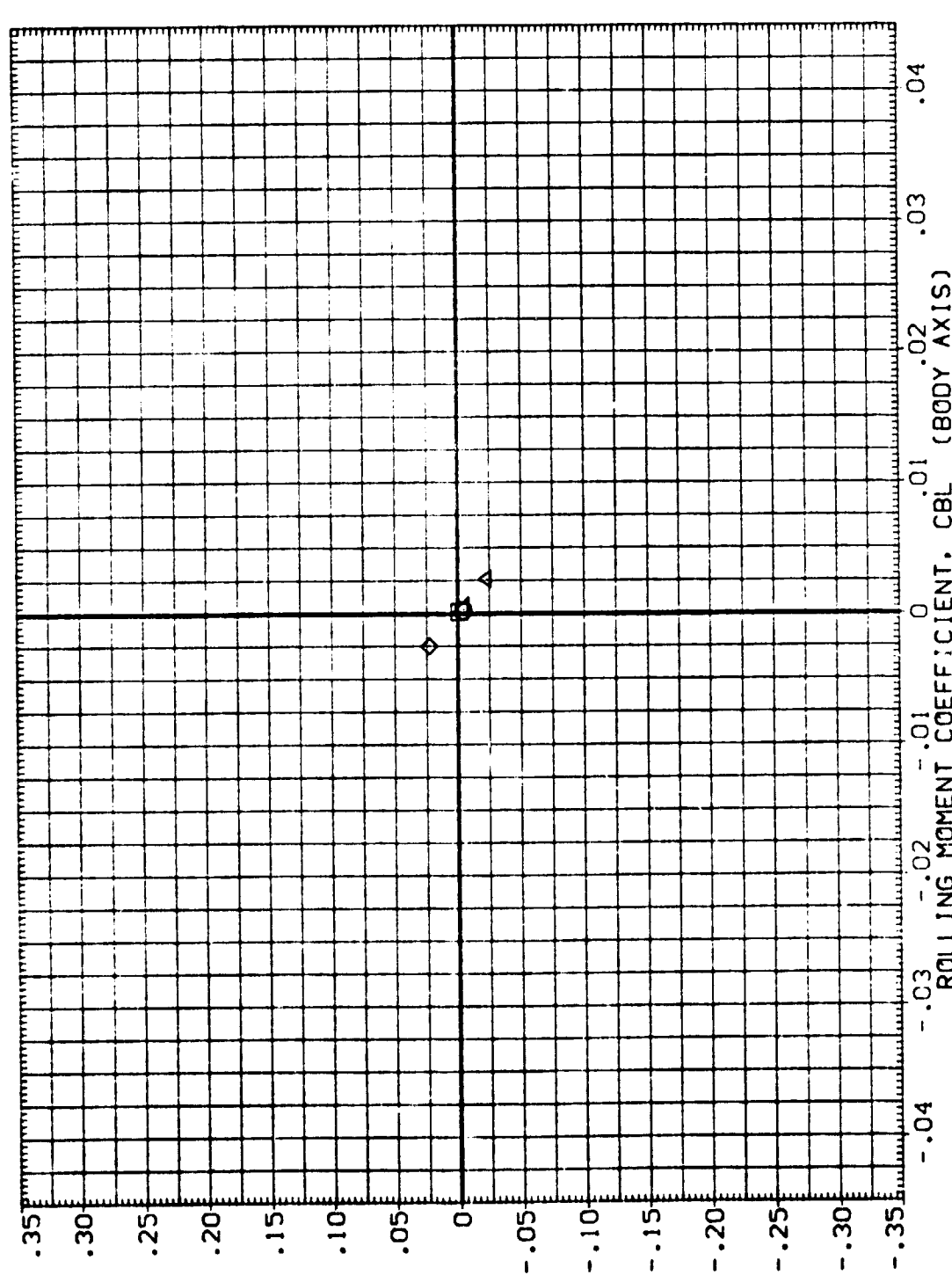


FIG. 20 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=1.55 DEV=10/-4
(E)ALPHA= 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LET046)	AMES97-0191(A81) LVAP ORBITER-ALL HL SEALED	10.000	-4.000	1.550	.000	SREF 2690.0000 SO.FT.
(LET146)	AMES97-0191(A81) LVAP TANK - ALL HL SEALED	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LET145)	AMES97-0191(A81) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LET146)	AMES97-0191(A81) LVAP R-LPB ALL HL SEALED	10.000	-4.000	1.550	.000	YMRP 976.0000 IN. XT
(LET146)	AMES97-0191(A81) LVAP INT VEH ALL HL SEALED	10.000	-4.000	1.550	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

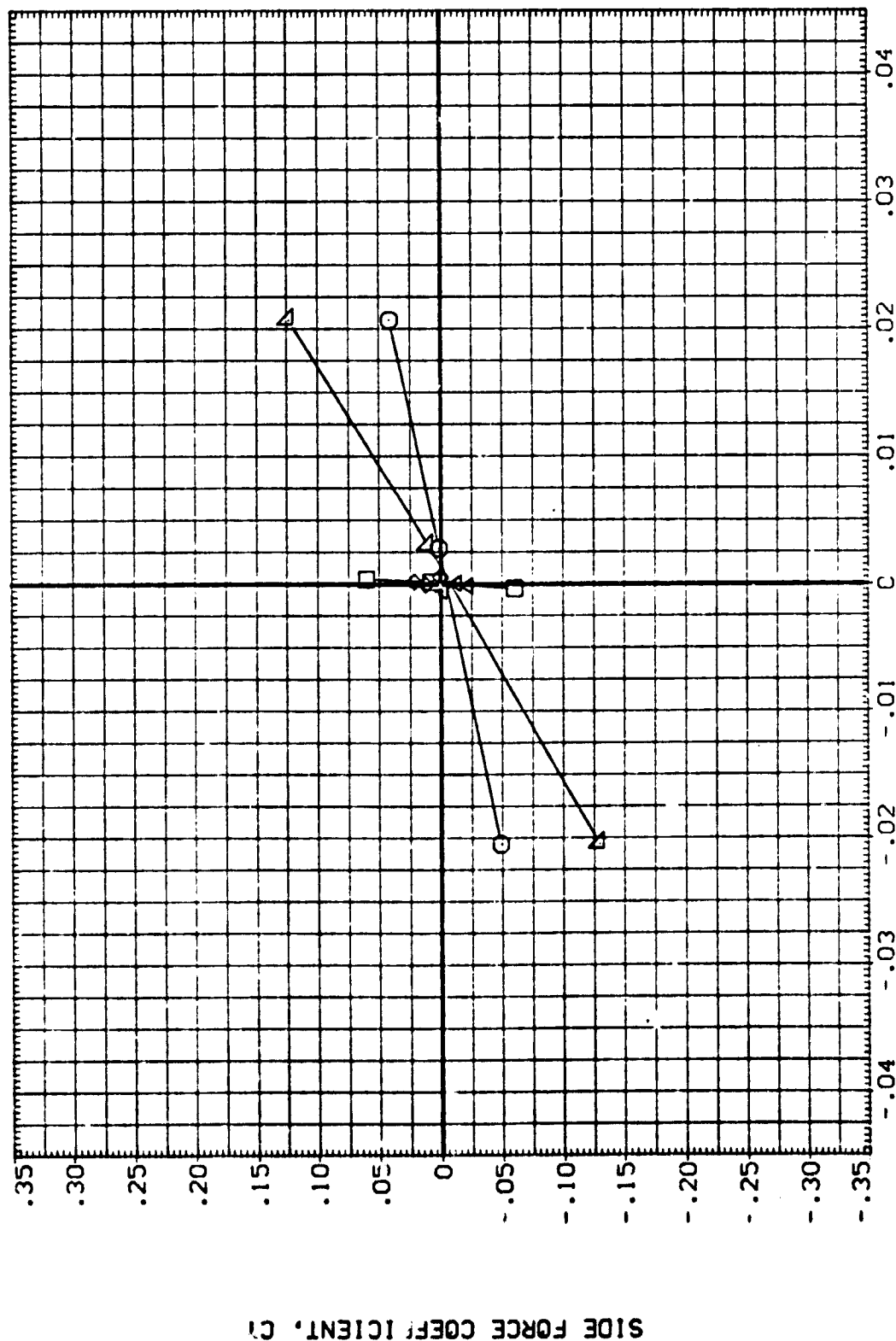


FIG. 20 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=1.55$ DEV=10/-4

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LETO46)	AMES97-019(1A81) LVAP ORBITTER-ALL HL SEALED	10.000	-4.000	1.550	.000	SREF 2690.0000 SO.FT.
(LETT46)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	10.000	-4.000	1.550	.000	LREF 1297.0000 IN.
(LETL46)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(LETR46)	AMES97-019(1A81) LVAP R-LPB ALL HL SEALED	10.000	-4.000	1.550	.000	AMPP 976.0000 IN. XT
(LETT46)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	10.000	-4.000	1.550	.000	AMPP .0000 IN. YT
						AMPP 400.0000 IN. ZT
						SCALE .0300

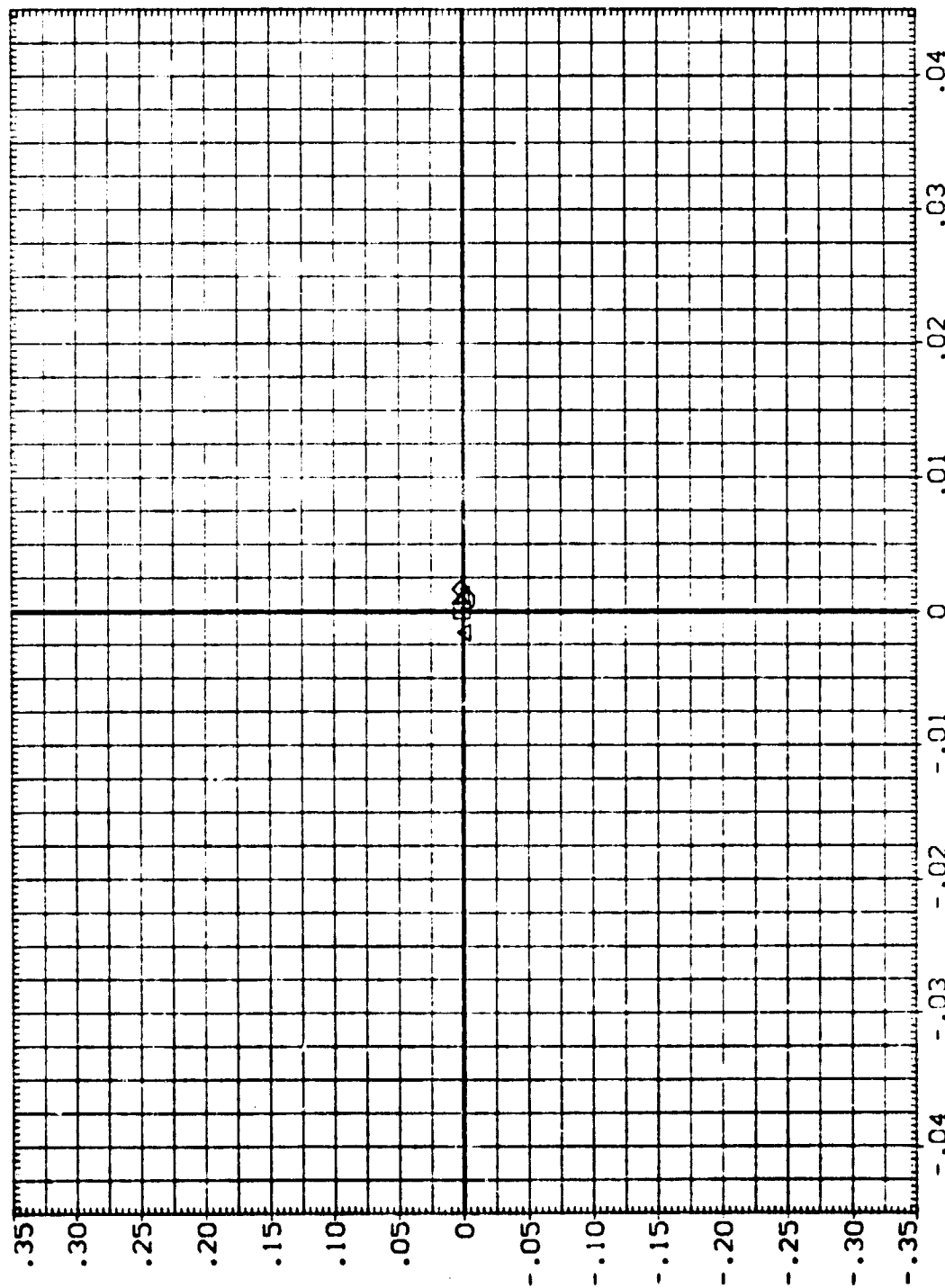


FIG. 20 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=1.55$ $DEV=10/-4$
 (G)ALPHA1= 6.00 PAGE 462

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LE1036)	AMES97-019(1A81) LVAP ORBITTER-ALL HL SEALED	8.000	-4.000	2.000	.000	SREF 2690.0000 SO.FT. 2690.0000
(LE1136)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.000	.000	LREF 1297.0000 IN. 1297.0000
(LE1236)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.000	.000	BREF 1297.0000 IN. 1297.0000
(LE1336)	AMES97-019(1A81) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.000	.000	XMRP 976.0000 IN. XT 976.0000
(LE1436)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.000	.000	YMRP 400.0000 IN. YT 400.0000
						ZMRP 400.0000 IN. ZT 400.0000
						SCALE .0300

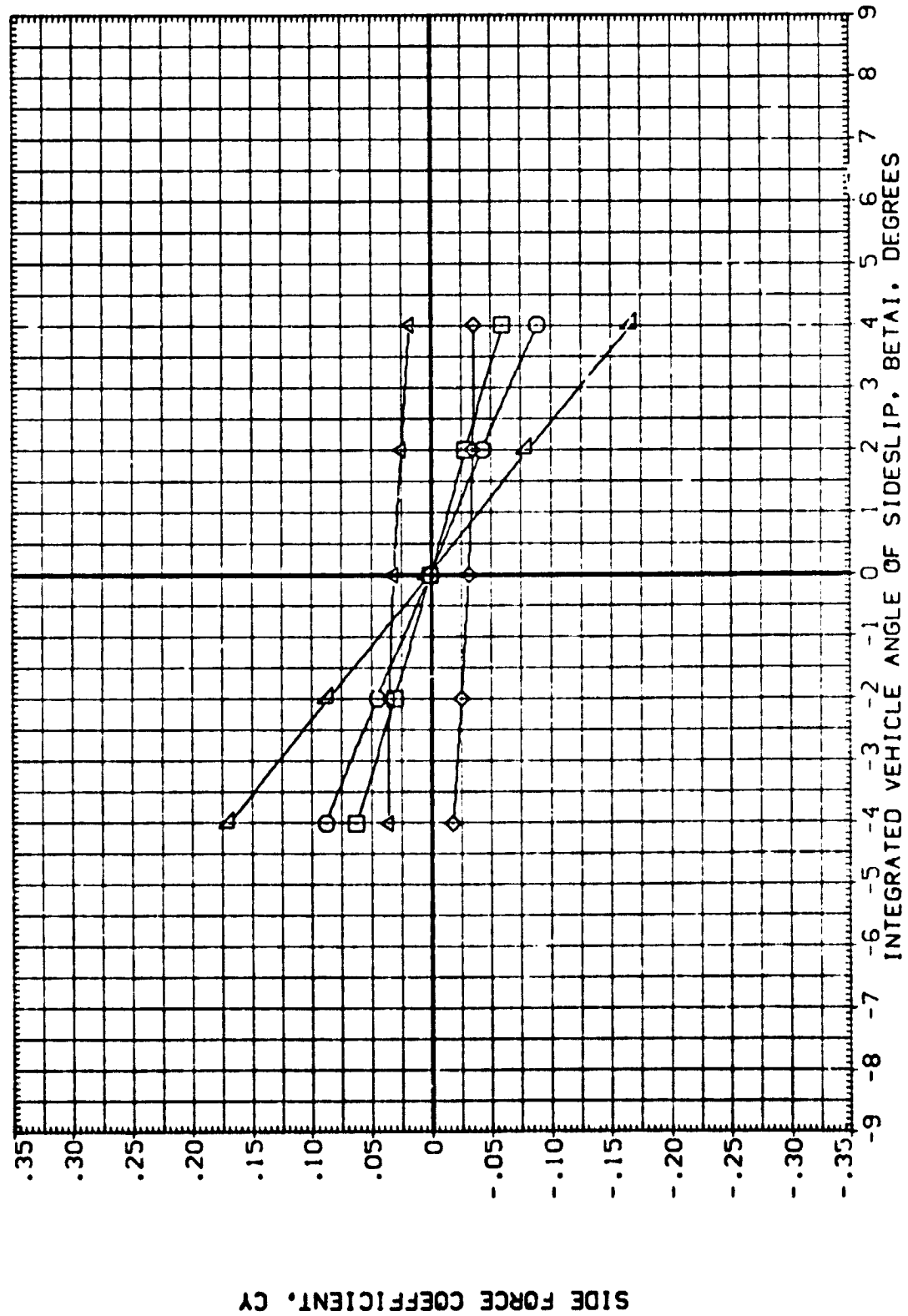


FIG. 21 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4

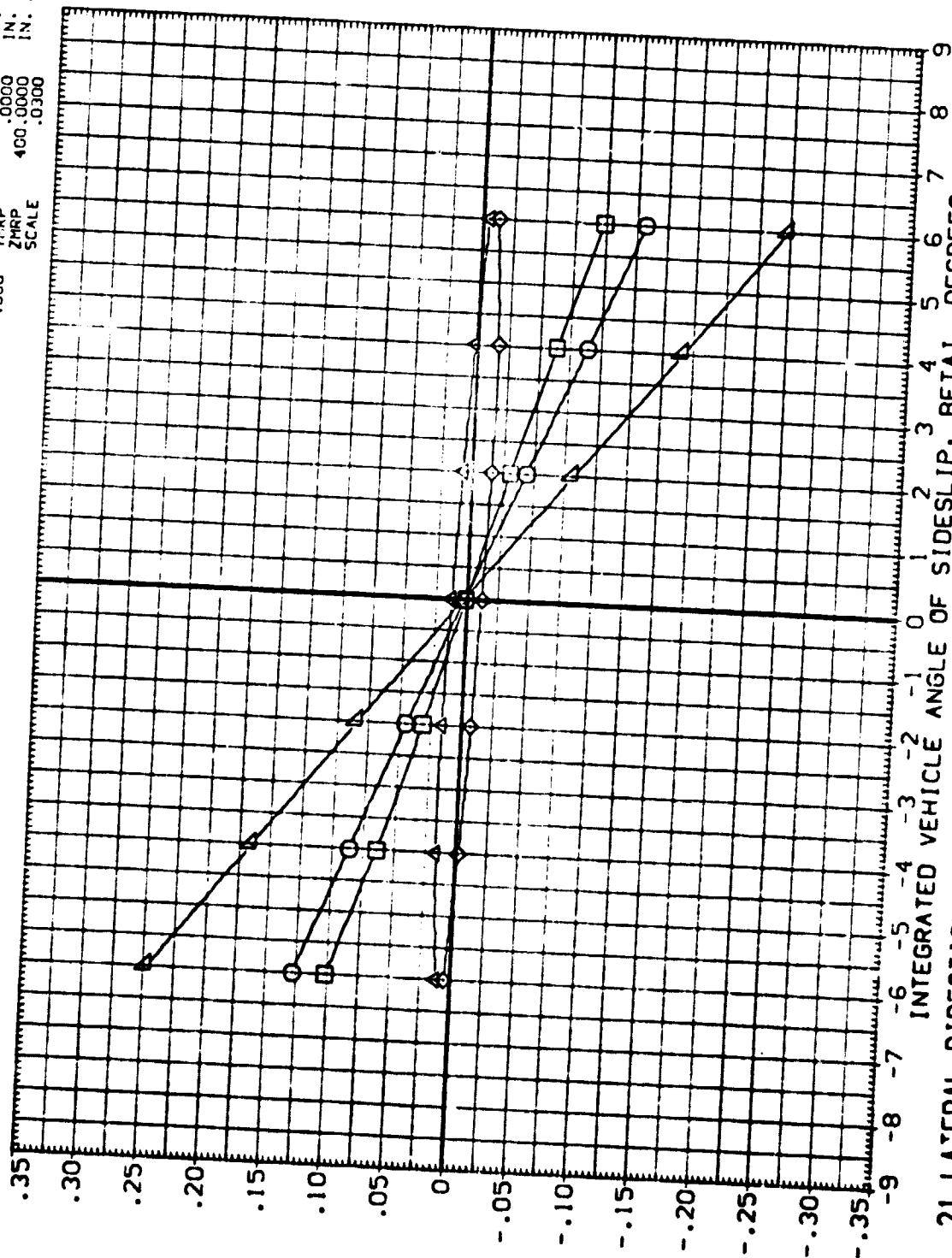
(A) ALPHA1 = -6.00

DATA SET SYMBOL

CONFIGURATION DESCRIPTION

(LE1036) AMES97-019(IAB1) LVAP ORBITER-ALL ML SEALED
 (LE1136) AMES97-019(IAB1) LVAP TANK - ALL ML SEALED
 (LE1236) AMES97-019(IAB1) LVAP L-SAB - ALL ML SEALED
 (LE1336) AMES97-019(IAB1) LVAP R-LRB - ALL ML SEALED
 (LE1436) AMES97-019(IAB1) LVAP INT VEN ALL ML SEALED

ELV-1B 8.000
 ELV-03 -4.000
 MACH 2.000
 SPOBRK .000
 SREF 2690.0000
 LREF 1297.0000
 BREF 1297.0000
 AMRP 976.0000
 YMRP .0000
 ZMRP .0000
 SCALE 400.0000
 IN. XT
 IN. YT
 IN. ZT



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FIG. 21 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4
(B) ALPHA= -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LET136)	AMES97-019C(AB1) LVAP ORBITER-ALL ML SEALED	8.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LET136)	AMES97-019C(AB1) LVAP TANK - ALL ML SEALED	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LET136)	AMES97-019C(AB1) LVAP L-SRB - ALL ML SEALED	8.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LET136)	AMES97-019C(AB1) LVAP R-LRB - ALL ML SEALED	8.000	-4.000	2.000	.000	YMRP 976.0000 IN.
(LET136)	AMES97-019C(AB1) LVAP INT VEH ALL ML SEALED	8.000	-4.000	2.000	.000	YMRP 400.0000 IN.
						SCALE .0300

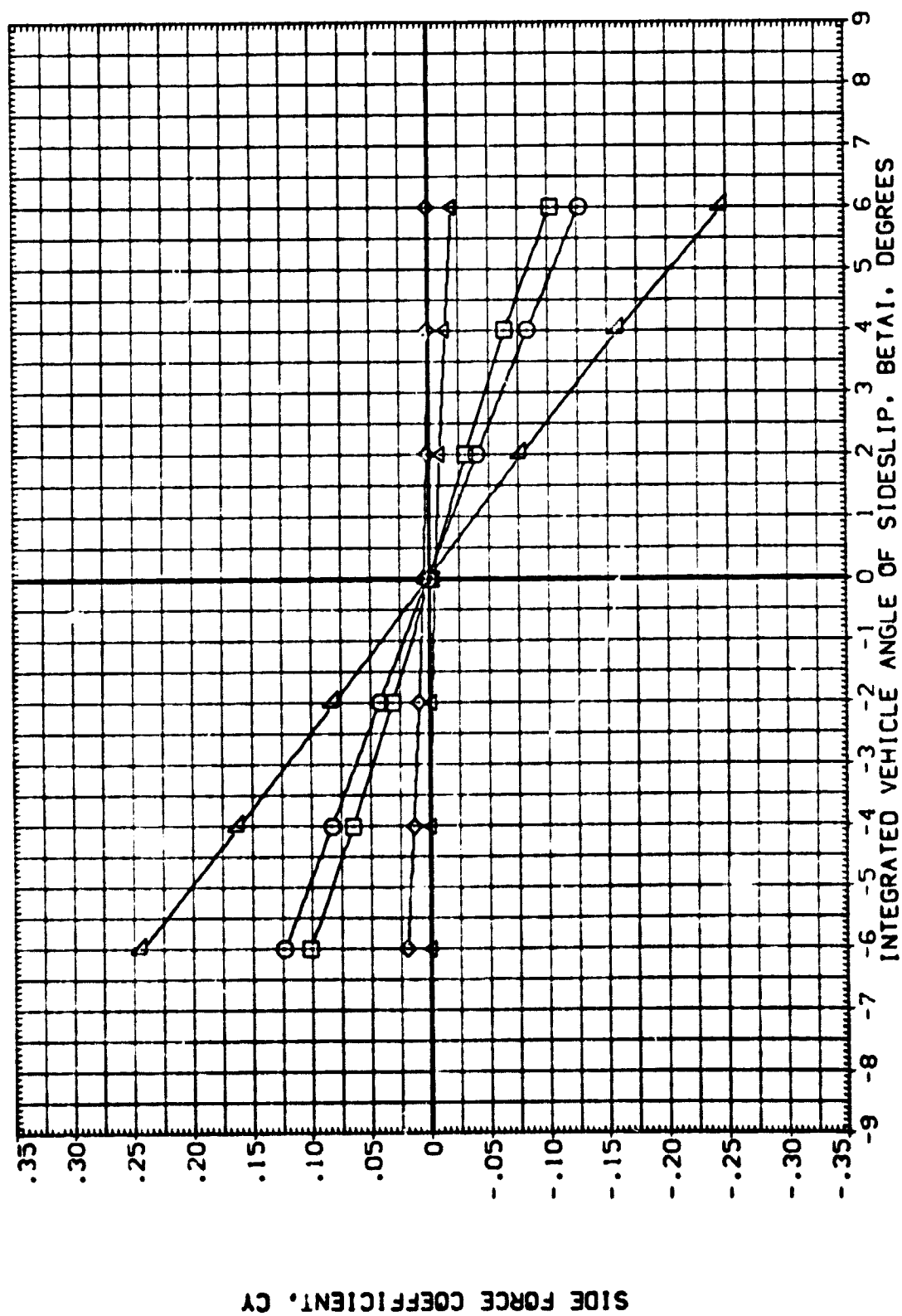


FIG. 21 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4
 (C)ALPHA= -2.00
 PAGE 465

DATA SET SYMBOL: (LET136) (LET136) (LET136) (LET136) (LET136) (LET136)

CONFIGURATION DESCRIPTION: ANES97-019(IAB1) LVAP ORBITTER-ALL ML SEALED TANK - ALL ML SEALED ANES97-019(IAB1) LVAP L-SRB - ALL ML SEALED ANES97-019(IAB1) LVAP R-LWB ALL ML SEALED ANES97-019(IAB1) LVAP INT VEM ALL ML SEALED

ELV-1B ELV-0B FACH SPOBRK REFERENCE INFORMATION

ELV-1B	ELV-0B	FACH	SPOBRK	SREF	2690.0000	SO.FT.
8.000	-4.000	2.000	.000	LREF	1297.0000	IN.
8.000	-4.000	2.000	.000	BREF	1297.0000	IN.
8.000	-4.000	2.000	.000	YMRP	976.0000	IN.
8.000	-4.000	2.000	.000	YMRP	976.0000	IN.
8.000	-4.000	2.000	.000	ZMRP	400.0000	IN.
				SCALE	400.0000	IN.

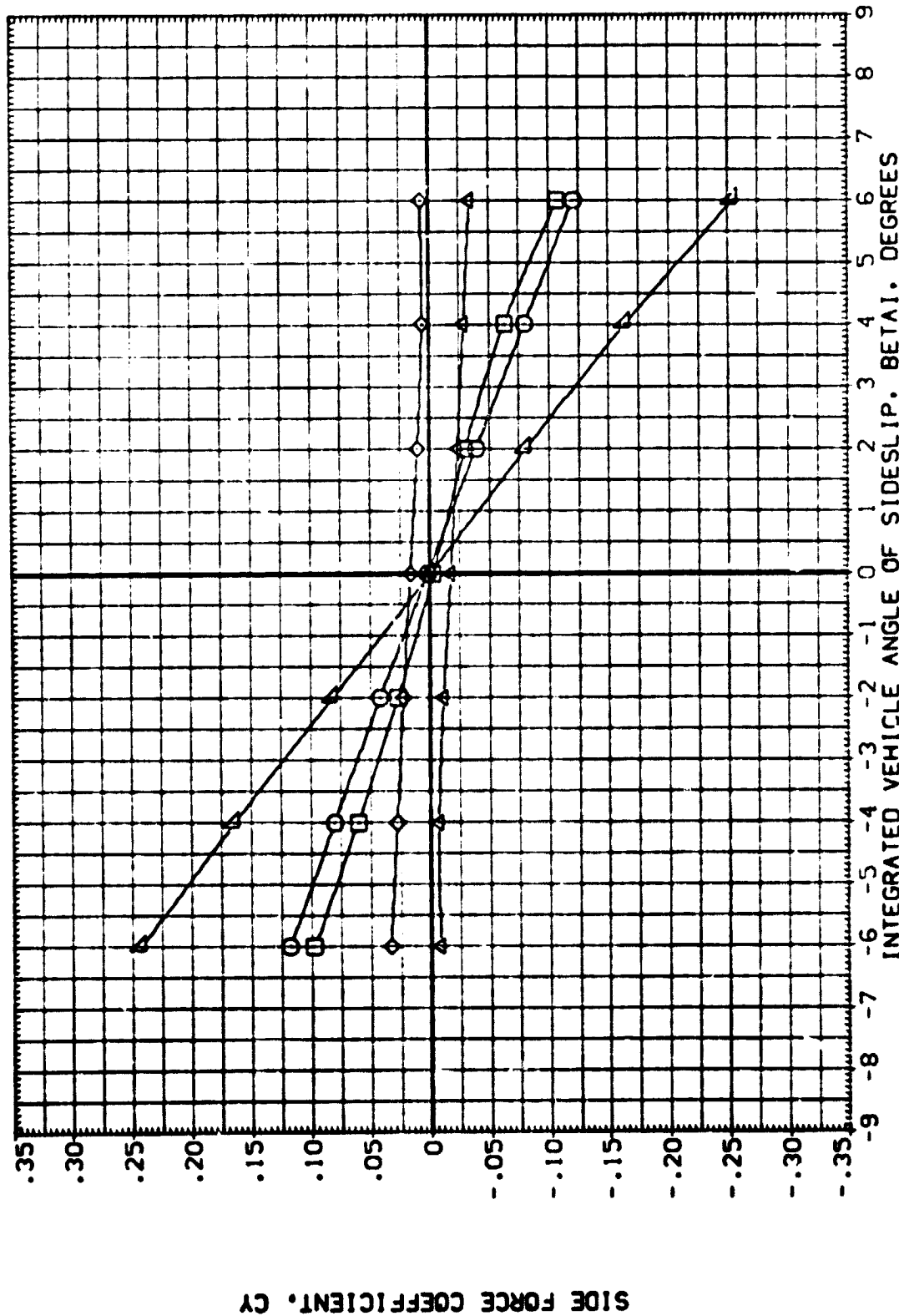


FIG. 21 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPOBRK	REFERENCE INFORMATION
(LE1036)	AME597-0191(AB1) LVAP OPRITER-ALL ML SEALED	8.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LE1136)	AME597-0191(AB1) LVAP TAXI - ALL ML SEALED	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LE1236)	AME597-0191(AB1) LVAP L-SPB - ALL ML SEALED	8.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LE1336)	AME597-0191(AB1) LVAP R-LPB - ALL ML SEALED	8.000	-4.000	2.000	.000	YMRP 576.0000 IN. XT
(LE1436)	AME597-0191(AB1) LVAP INT VCM ALL ML SEALED	8.000	-4.000	2.000	.000	YMRP 400.0000 IN. YT
						SCALE .0300

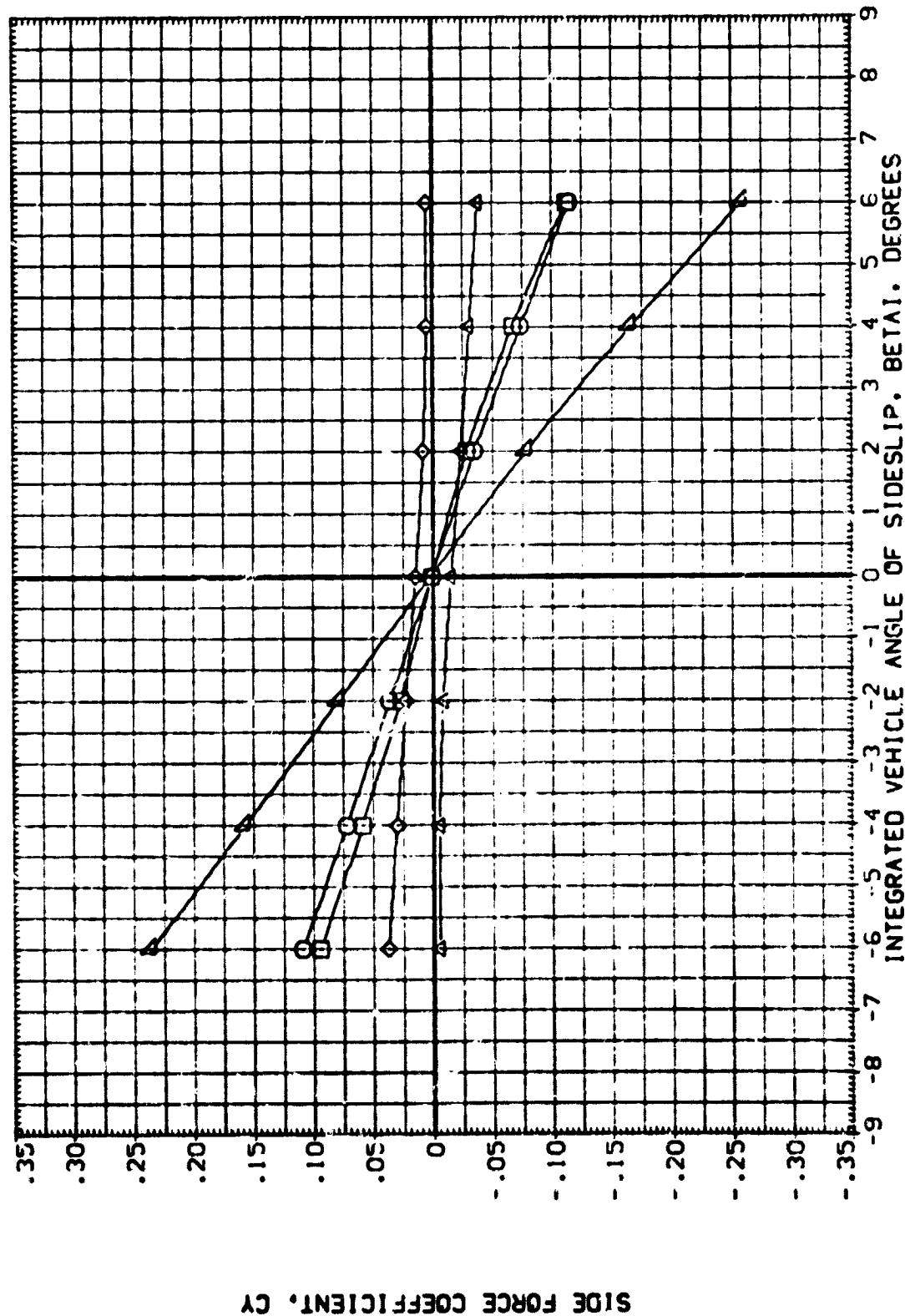


FIG. 21 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4

(E)ALPHA= 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-CB	MACH	SPDRK	REFERENCE INFORMATION
(LET036)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LET136)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LET137)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LET136)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.000	.000	XMRP 976.0000 IN.
(LET136)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.000	.000	ZMRP 400.0000 IN.
						SCALE .0300

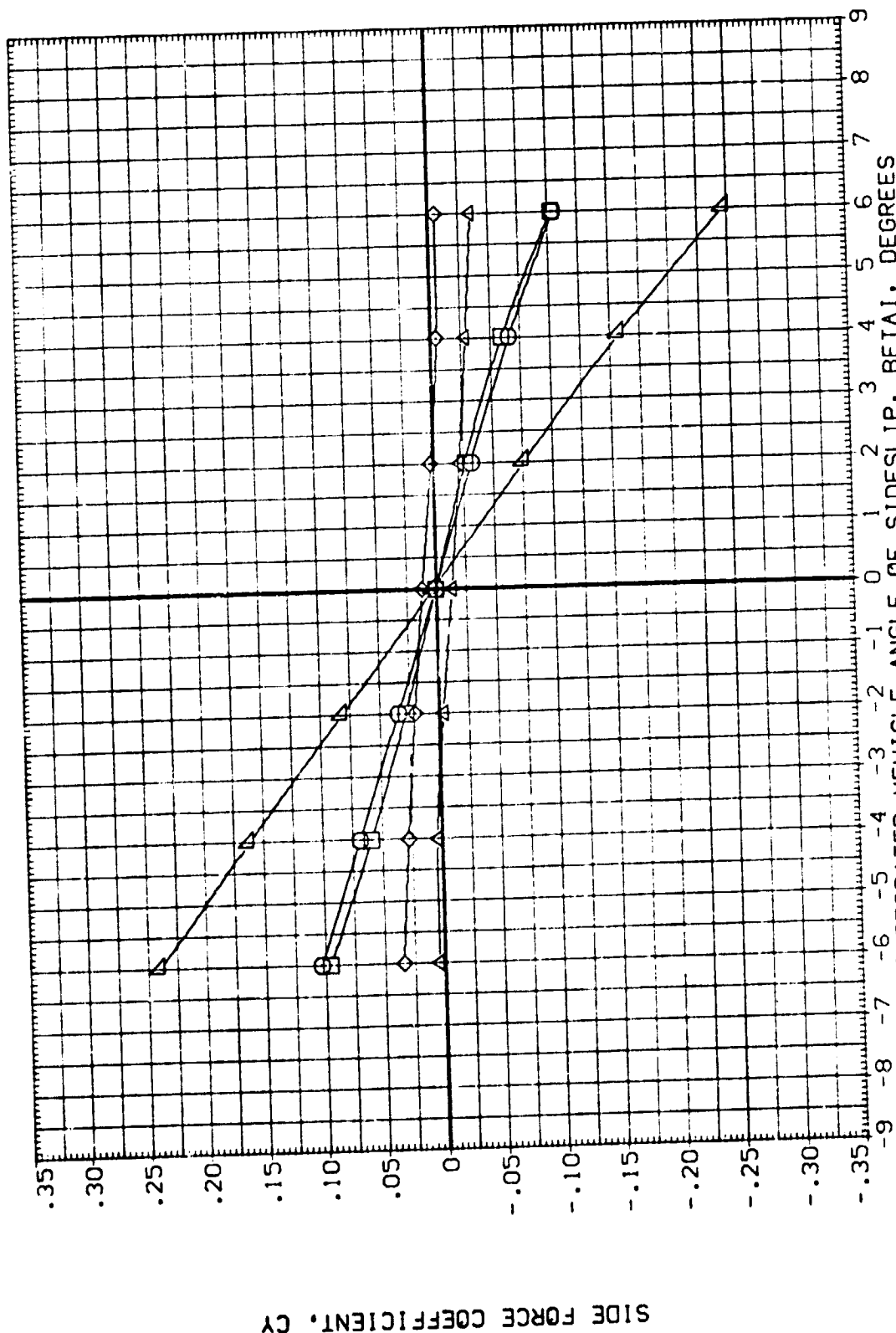


FIG. 21 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4

REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDBRK	REFERENCE INFORMATION
(LETO36)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LETT36)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LETT36)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LETT36)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.000	.000	XMRP 976.0000 IN. XT
(LETT36)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.000	.000	YMRP 400.0000 IN. YT
(LETT36)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.000	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

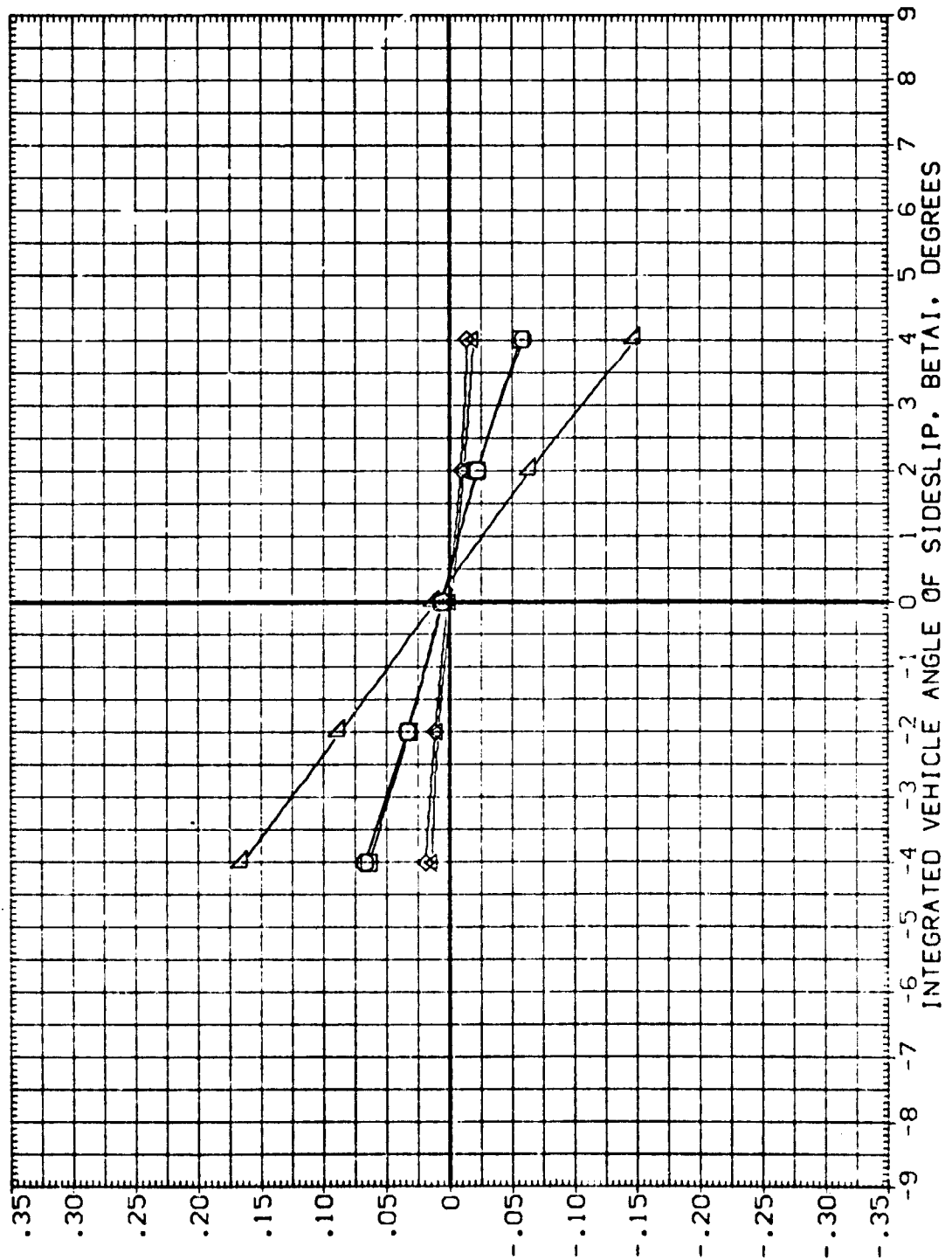


FIG. 21 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4
(G)ALPHA= 6.00 PAGE 469

SIDE FORCE COEFFICIENT, CY

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPOBRK	REFERENCE INFORMATION
(LE1036)	AME597-019(IAB1) LVAP ORBITTER-ALL HL SEALED	8.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LE1136)	AME597-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LE1136)	AME597-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LE1136)	AME597-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.000	.000	XMRP 976.0000 IN. XT
(LE1136)	AME597-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.000	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0200

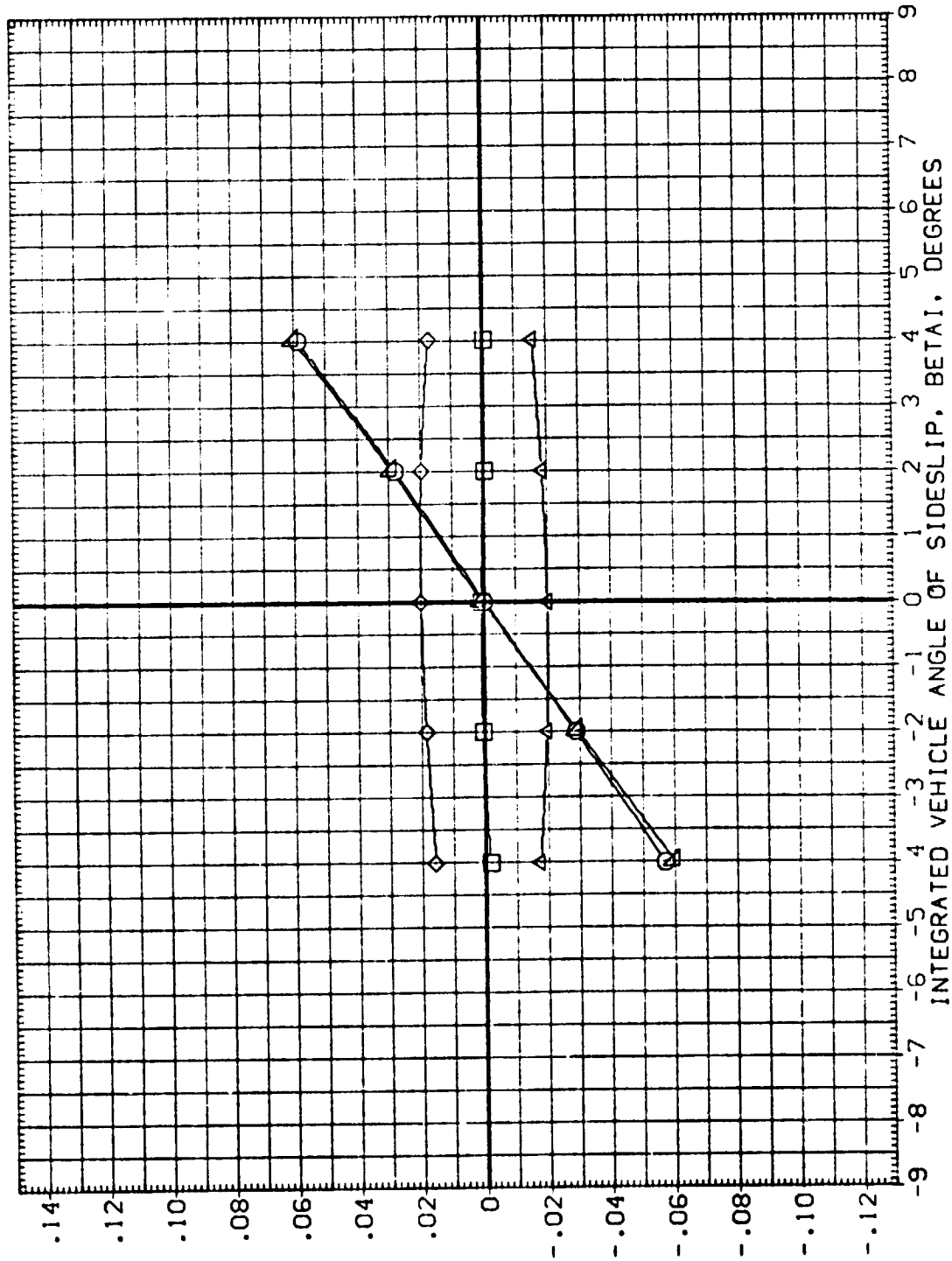


FIG. 21 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(LE1036)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LE1136)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LE1236)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LE1336)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.000	.000	XMRP 976.0000 IN.
(LE1436)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.000	.000	YMRP .0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

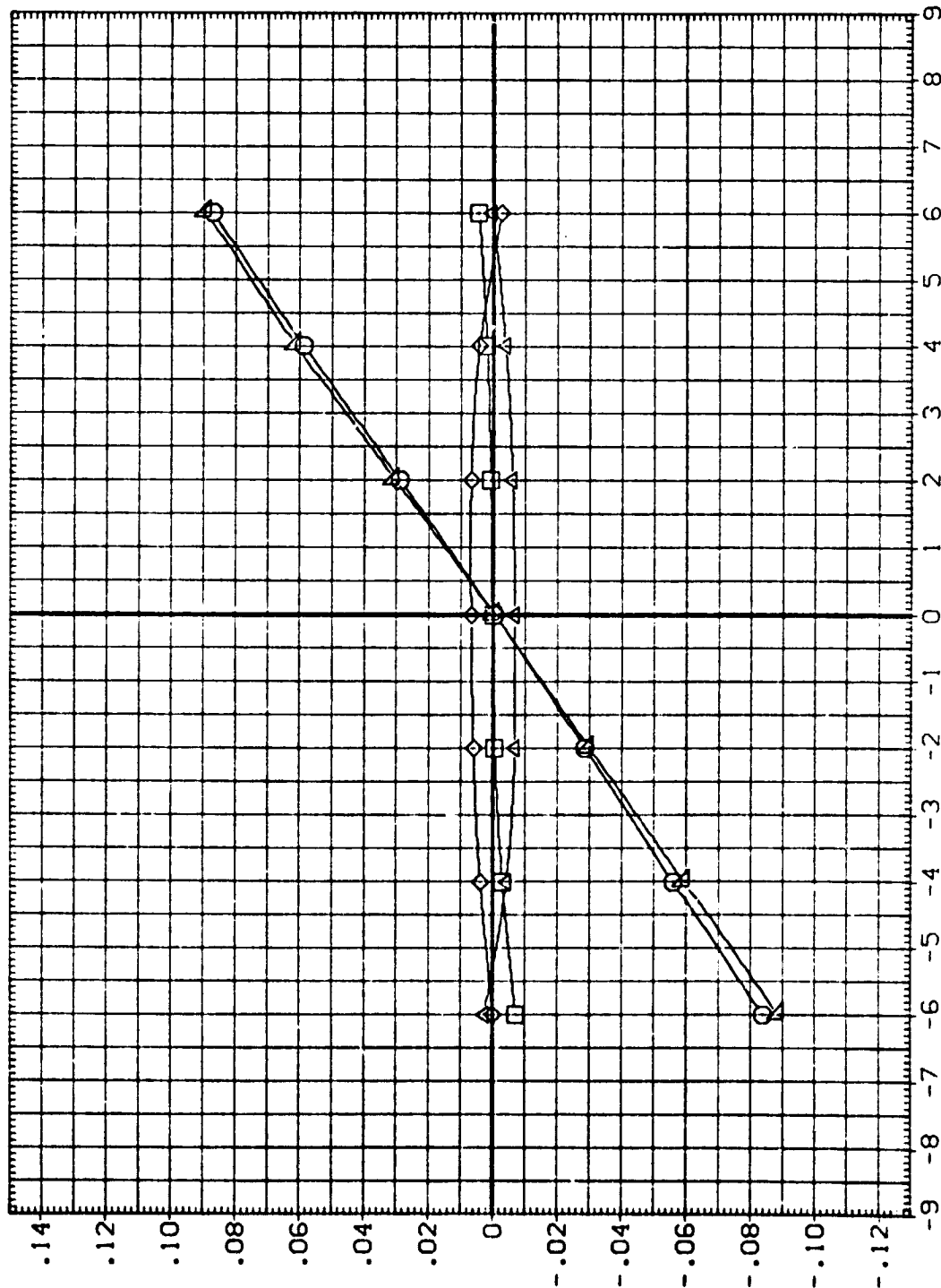
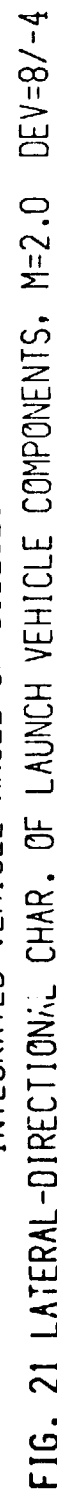


FIG. 21 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4

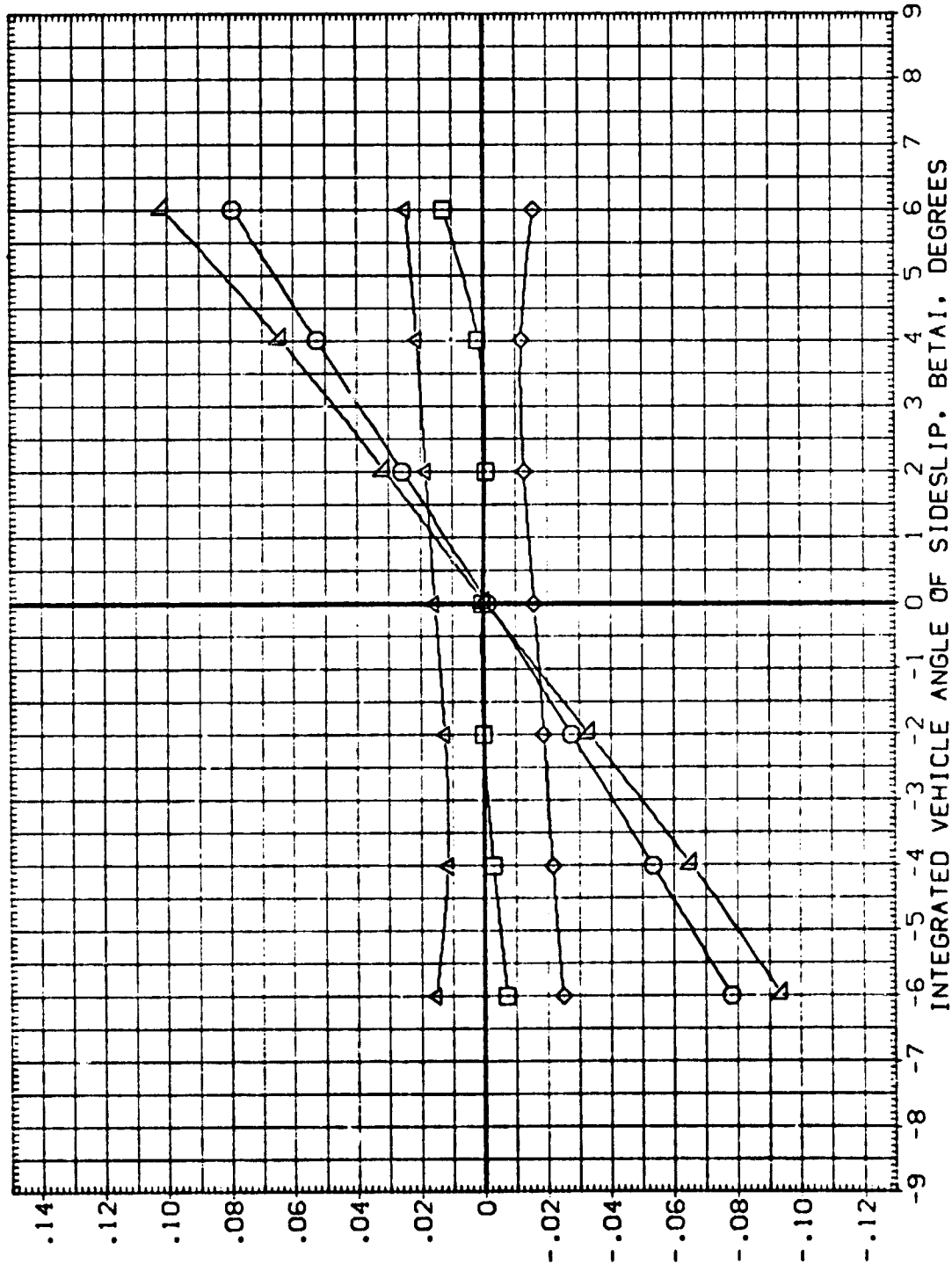
(B)ALPHA1= -4.00

FOREBODY YAWING MOMENT COEFFICIENT, CYNF



PAGE 472

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
AME597-019(1A81)	LVAP ORBITTER-ALL HL SEALED	8.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LE1036)	TANK - ALL HL SEALED	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LE1136)	L-SRB - ALL HL SEALED	8.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LE1L36)	LVAP R-LRB ALL HL SEALED	8.000	-4.000	2.000	.000	XMRP 976.0000 IN. XT
(LE1R36)	LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.000	.000	YMRP .0000 IN. YT
(LE1136)						ZMRP 400.0000 IN. ZT
						SCALE .0300



FOREBODY YAWING MOMENT COEFFICIENT, CYNF

FIG. 21 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4

(D) ALPHA = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LE1036)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LE1136)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LE1236)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LE1336)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.000	.000	ANRP 976.0000 IN.
(LE1436)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.000	.000	YMRP .0000 IN.
					.000	ZMRP .0000 IN.
						SCALE .0300

FOREBODY YAWING MOMENT COEFFICIENT, CYNF

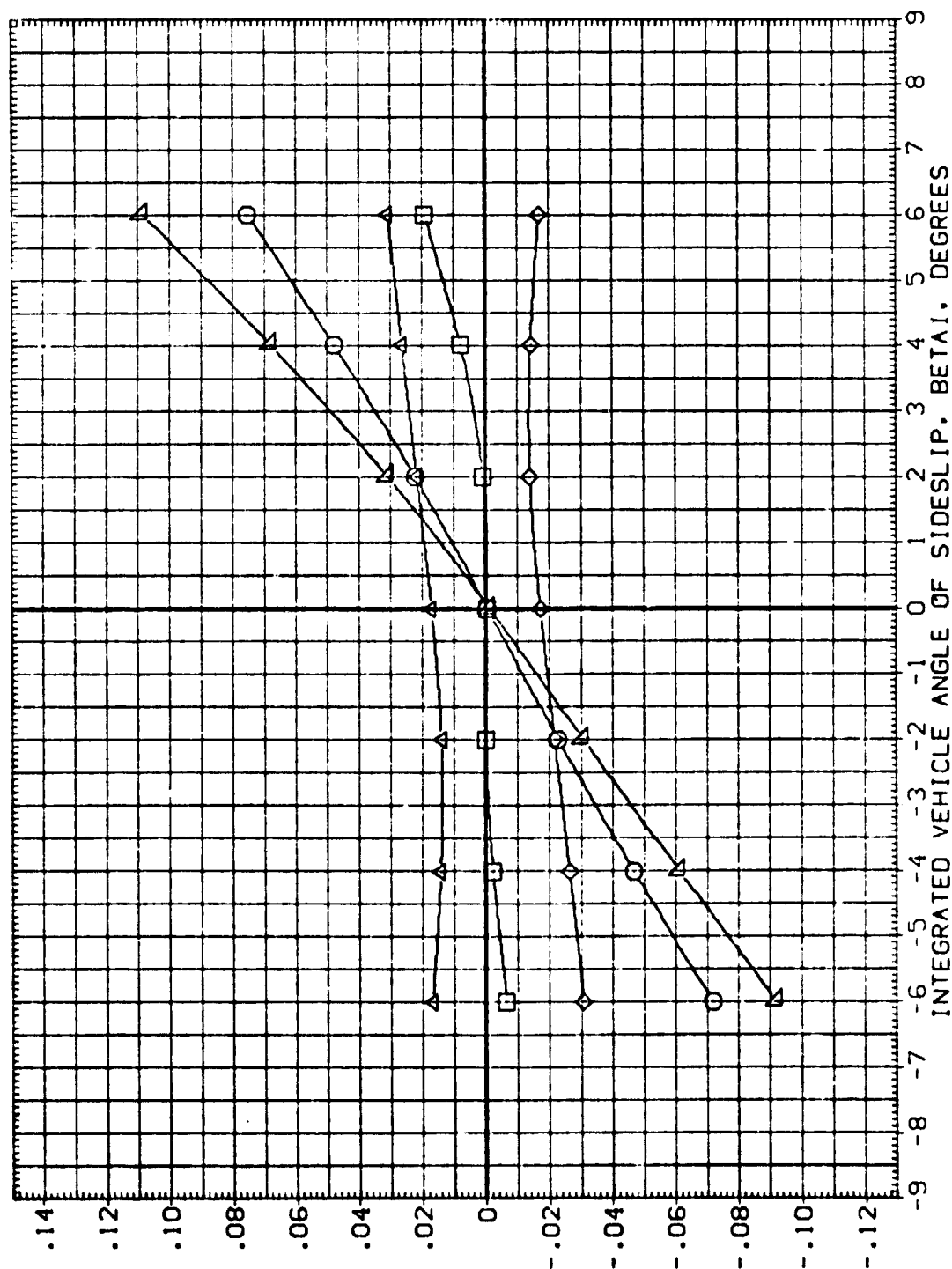


FIG. 21 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4

(E) ALPHA= 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LET036)	APES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LET136)	APES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LET136)	APES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LET136)	APES97-019(IAB1) LVAP R-LRB ALL HL SEALED	8.000	-4.000	2.000	.000	XMRP 976.0000 IN.
(LET136)	APES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.000	.000	YMRP .0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

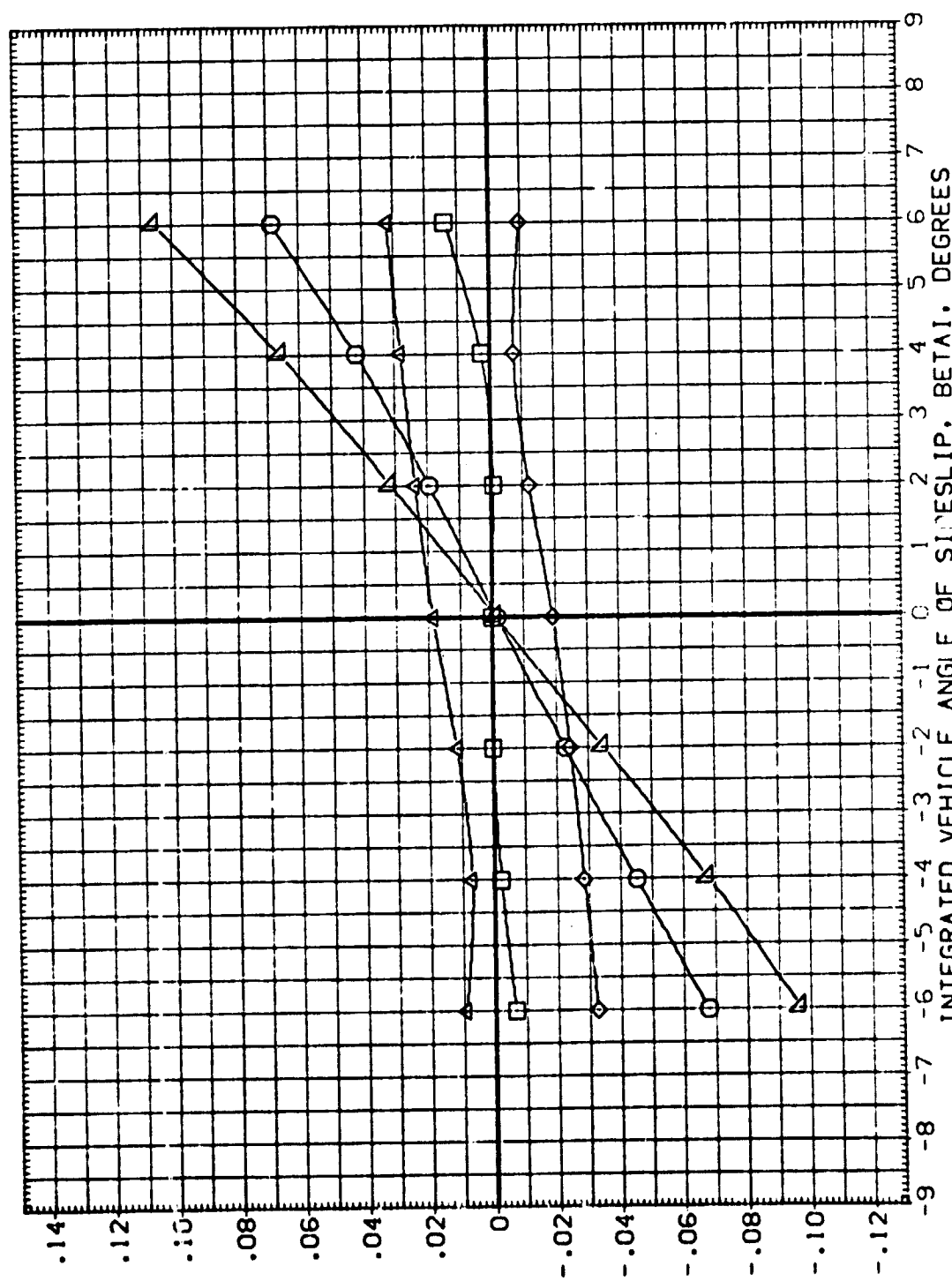


FIG. 21 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4
(F)ALPHA= 4.00 PAGE 475

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-DB	MACH	SPDBRK	REFERENCE INFORMATION
(LET036)	AMES97-019(IAB1) LVAP CRITTER-ALL HL SEALED	8.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LET136)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LET136)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.000	.000	SREF 1297.0000 IN.
(LET136)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.000	.000	XMRP 976.0000 IN.
(LET136)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.000	.000	YMRP .0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

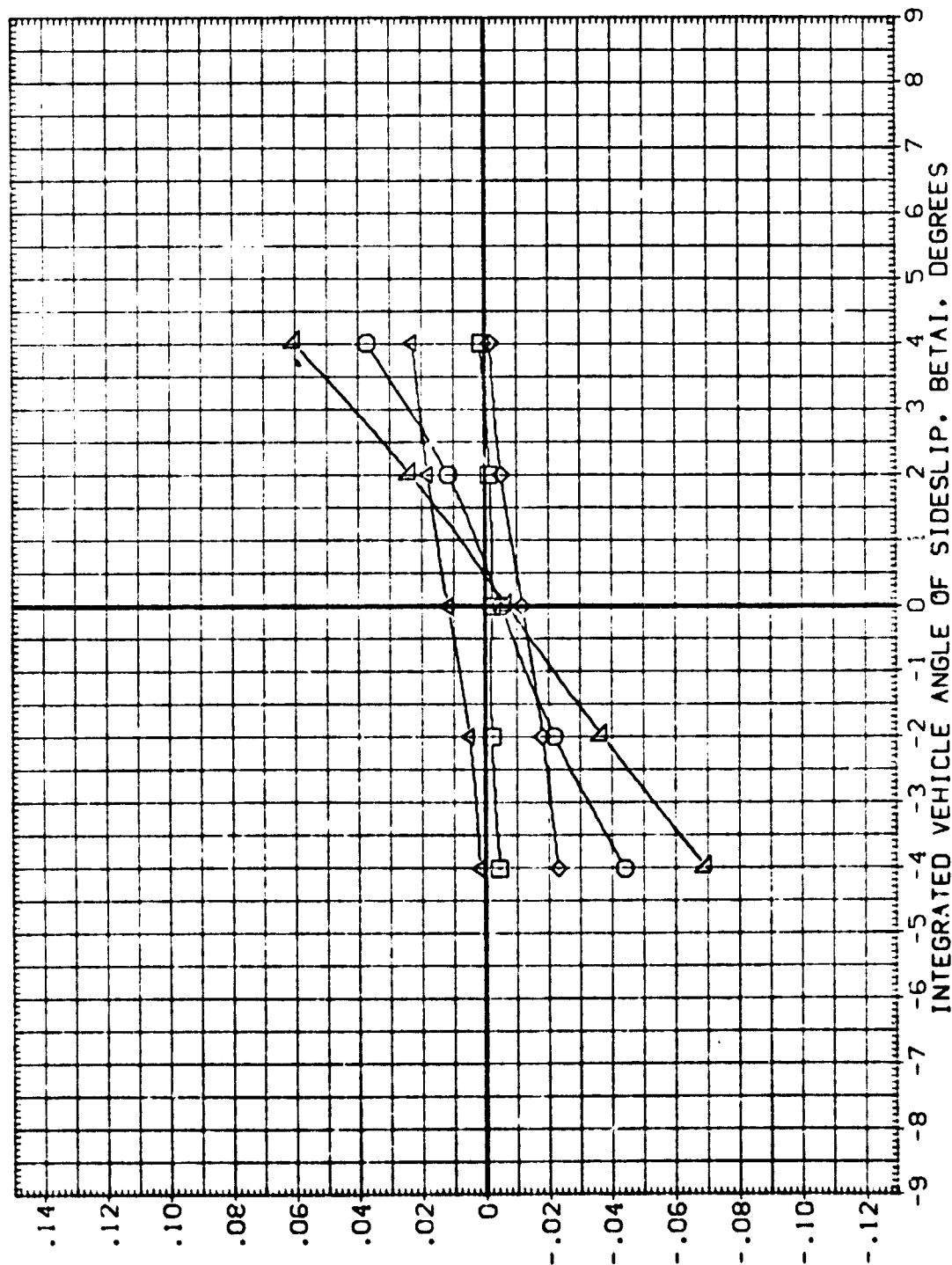


FIG. 21 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4

(G)ALPHA= 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LE1036)	AME597-019(1A81) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.000	.000	SREF 2690.0000 SO.FT.
(LE1136)	AME597-019(1A81) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LE1236)	AME597-019(1A81) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LE1436)	AME597-019(1A81) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.000	.000	XMRP 976.0000 IN.
(LE1136)	AME597-019(1A81) LVAP INT VEM ALL HL SEALED	8.000	-4.000	2.000	.000	ZMRP 400.0000 IN.
						SCALE .0300

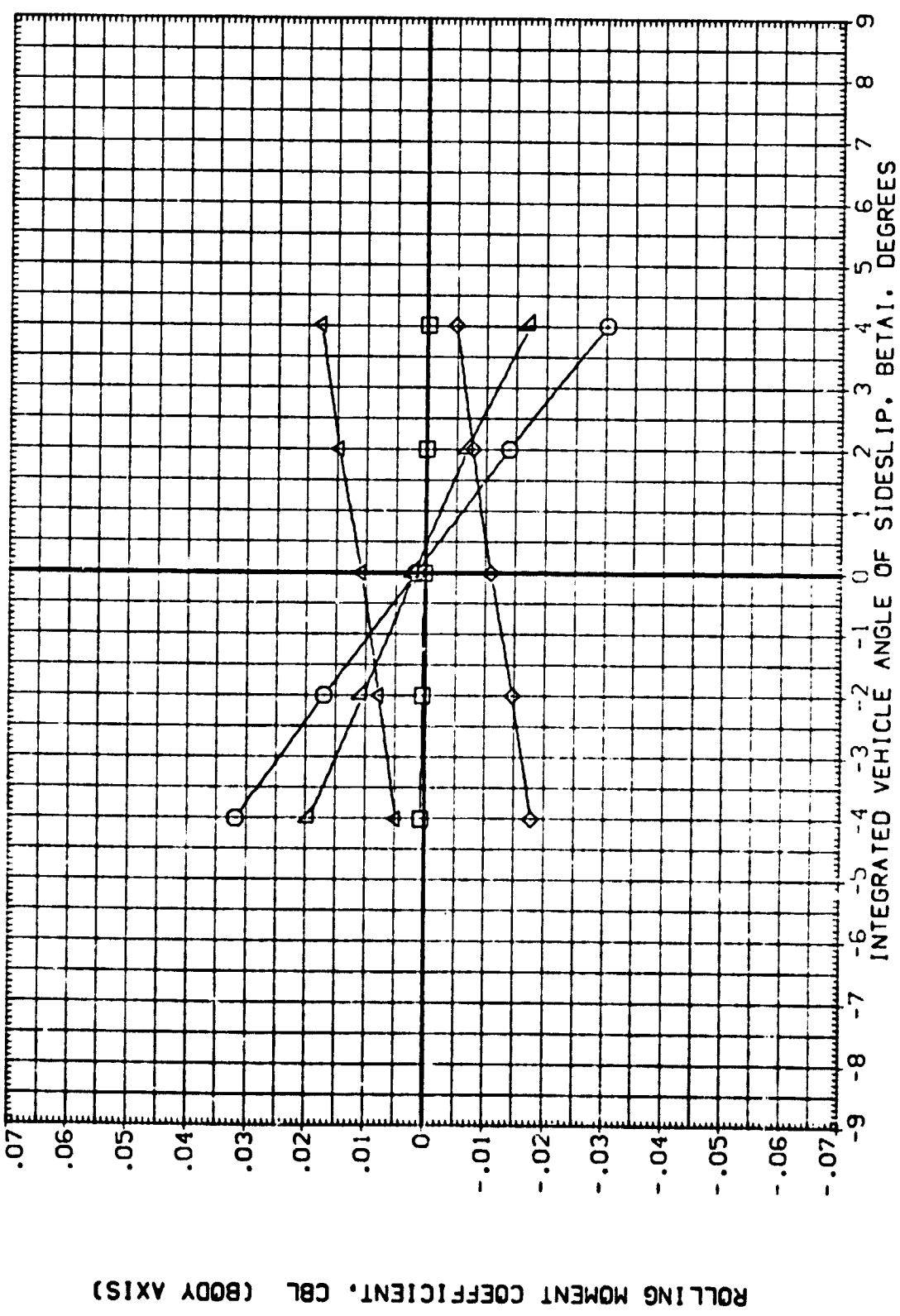


FIG. 21 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4
 (A)ALPHA= -6.00 PAGE 477

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LETO26)	APES97-019(IAB1) LVAP ORBITER-ALL ML SEALED	8.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LETT26)	APES97-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LETL26)	APES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	8.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LETR26)	APES97-019(IAB1) LVAP R-LRB - ALL ML SEALED	8.000	-4.000	2.000	.000	MRP 976.0000 IN. XT
(LETT26)	APES97-019(IAB1) LVAP INT VEH - ALL ML SEALED	8.000	-4.000	2.000	.000	MRP 976.0000 IN. YT
(LETT26)						ZMRP 400.0000 IN. ZT
						SCALE .0300

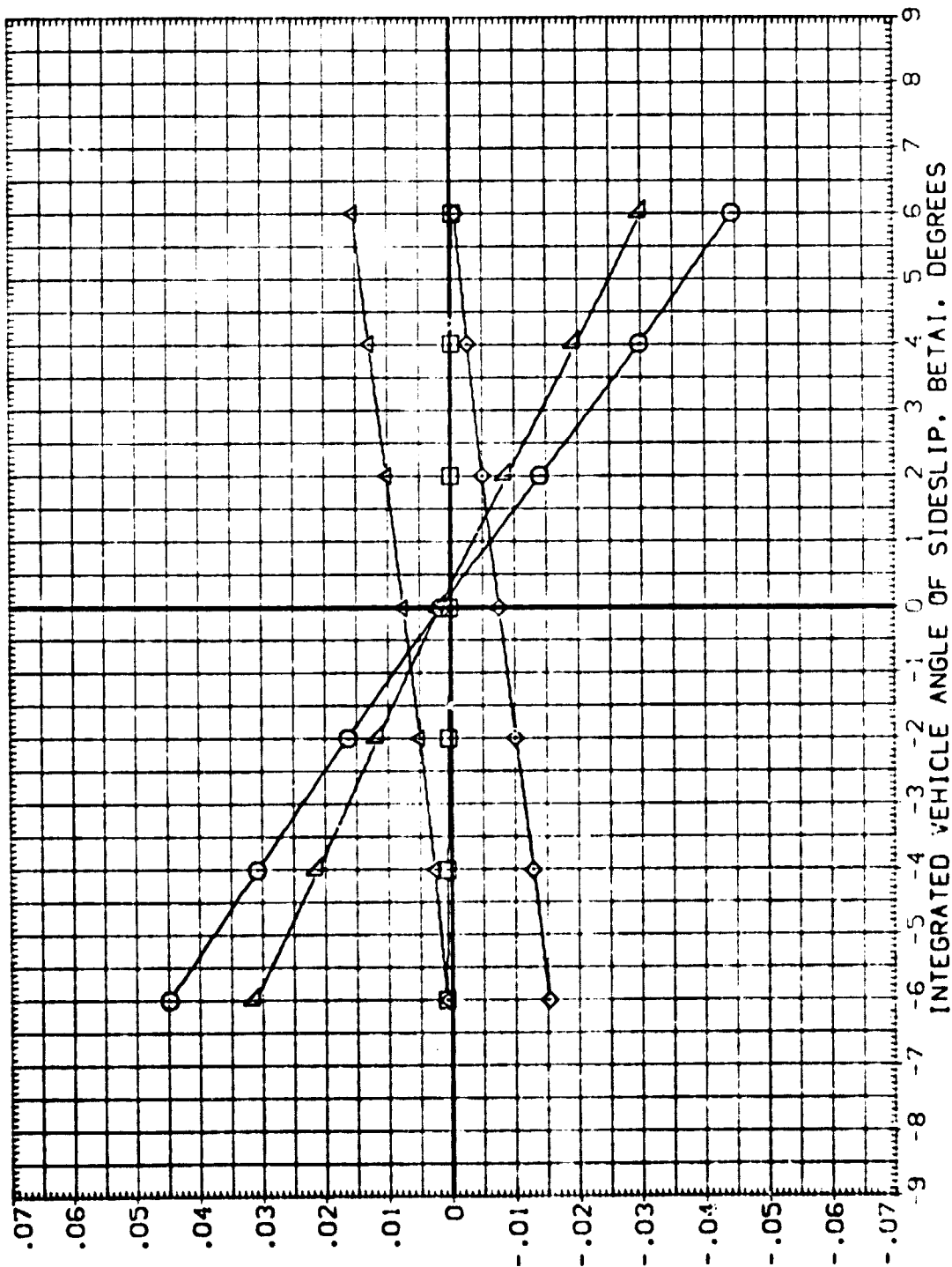


FIG. 21 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4
(B) ALPHA = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-DB	MACH	SPOBRK	REFERENCE INFORMATION
(LE1036)	AME S97-019(IAB1) LVAP QHB1TER-ALL ML SEALED	8.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LE1136)	AME S97-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LE1236)	AME S97-019(IAB1) LVAP L-SRB - ALL ML SEALED	8.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LE1336)	AME S97-019(IAB1) LVAP R-LRB - ALL ML SEALED	8.000	-4.000	2.000	.000	XMRP 976.0000 IN. YI
(LE1436)	AME S97-019(IAB1) LVAP INT VEH ALL ML SEALED	8.000	-4.000	2.000	.000	YMRP 400.0000 IN. ZI
						SCALE .0300

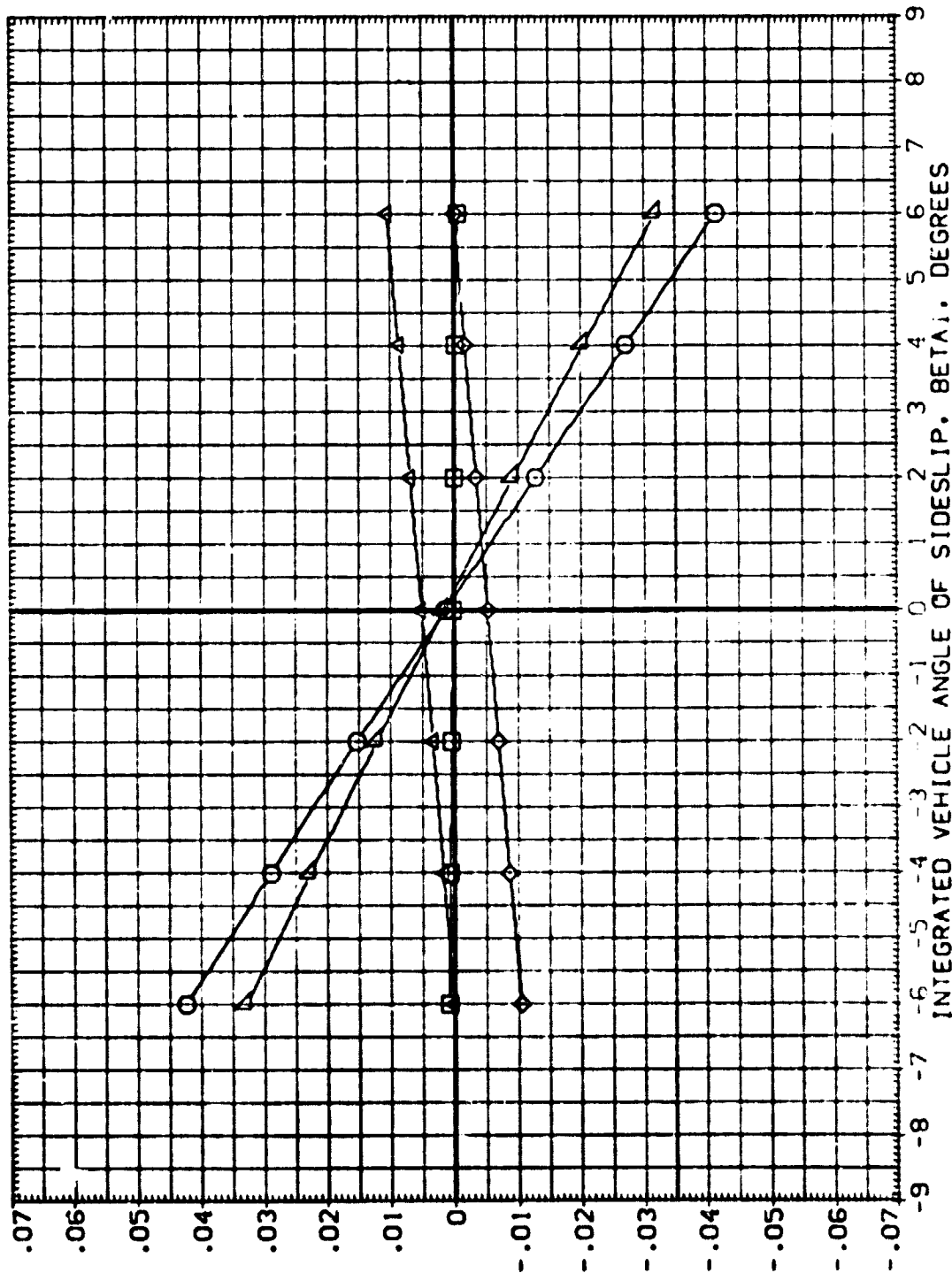


FIG. 21 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)



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DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-DB	MACH	SPDRK	REFERENCE INFORMATION
(LE1036)	□	AME597-019(IAB1) LVAP ORBITER-ALL ML SEALED	8.000	-4.000	2.000	.000	SREF 2690.0000 SO.FT.
(LE1136)	□	AME597-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LE1236)	□	AME597-019(IAB1) LVAP L-CRB - ALL ML SEALED	8.000	-4.000	2.000	.000	BREF 1257.0000 IN.
(LE1336)	□	AME597-019(IAB1) LVAP R-LRB - ALL ML SEALED	8.000	-4.000	2.000	.000	XMRP .0000 IN. XT
(LE1436)	□	AME597-019(IAB1) LVAP INT VEH ALL ML SEALED	8.000	-4.000	2.000	.000	YMRP .0000 IN. YT
							ZMRP 400.0000 IN. ZT
							SCALE .0300

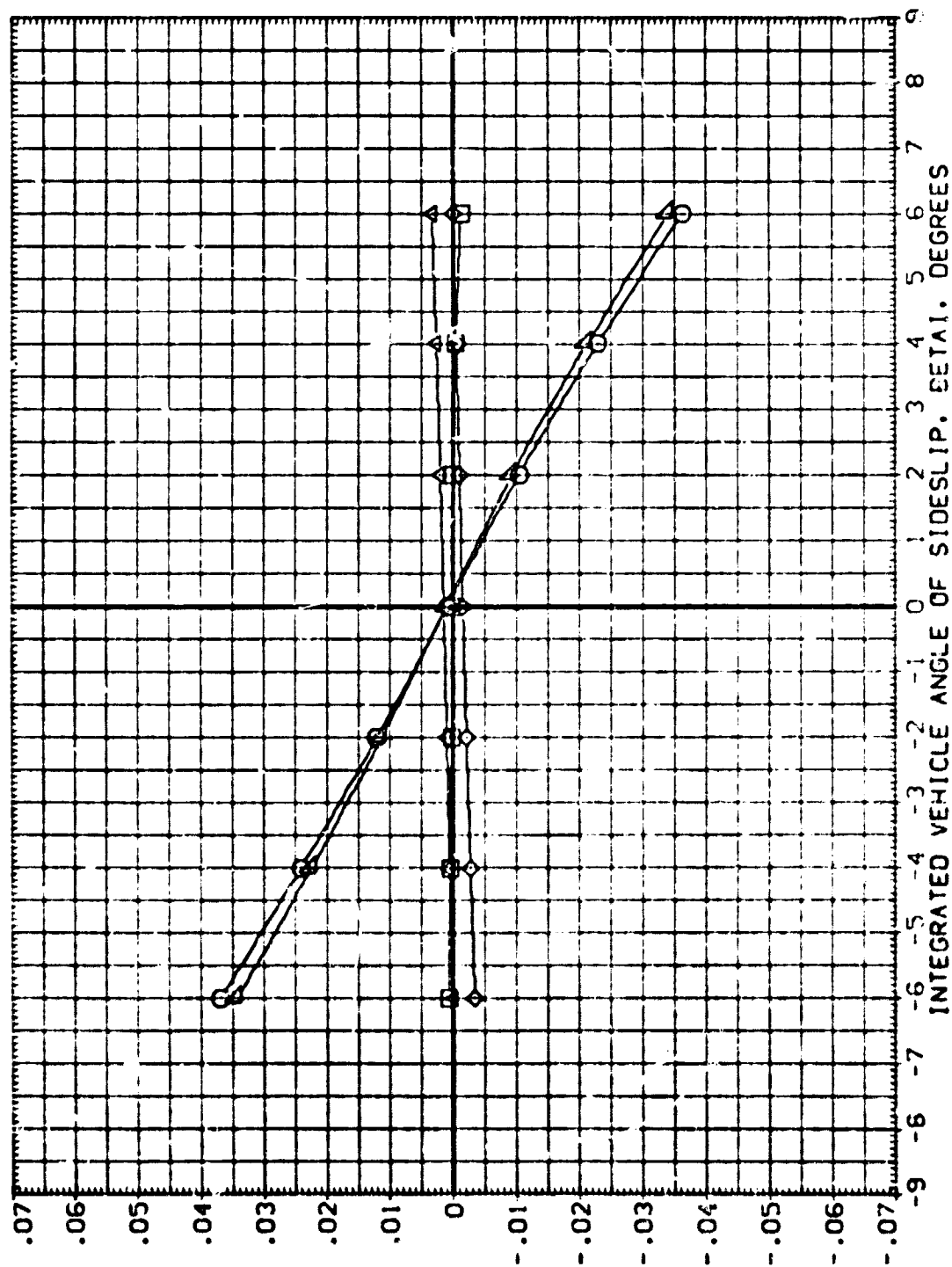


FIG. 21 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS. $M=2.0$ $DEV=8/-4$

(E) ALPHA = 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LET036)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.000	.000	SREF 2690.0000 50.FT.
(LET136)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LET136)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LET136)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	9.000	-4.000	2.000	.000	AMRP 976.0000 IN.
(LET136)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.000	.000	YMRP .0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

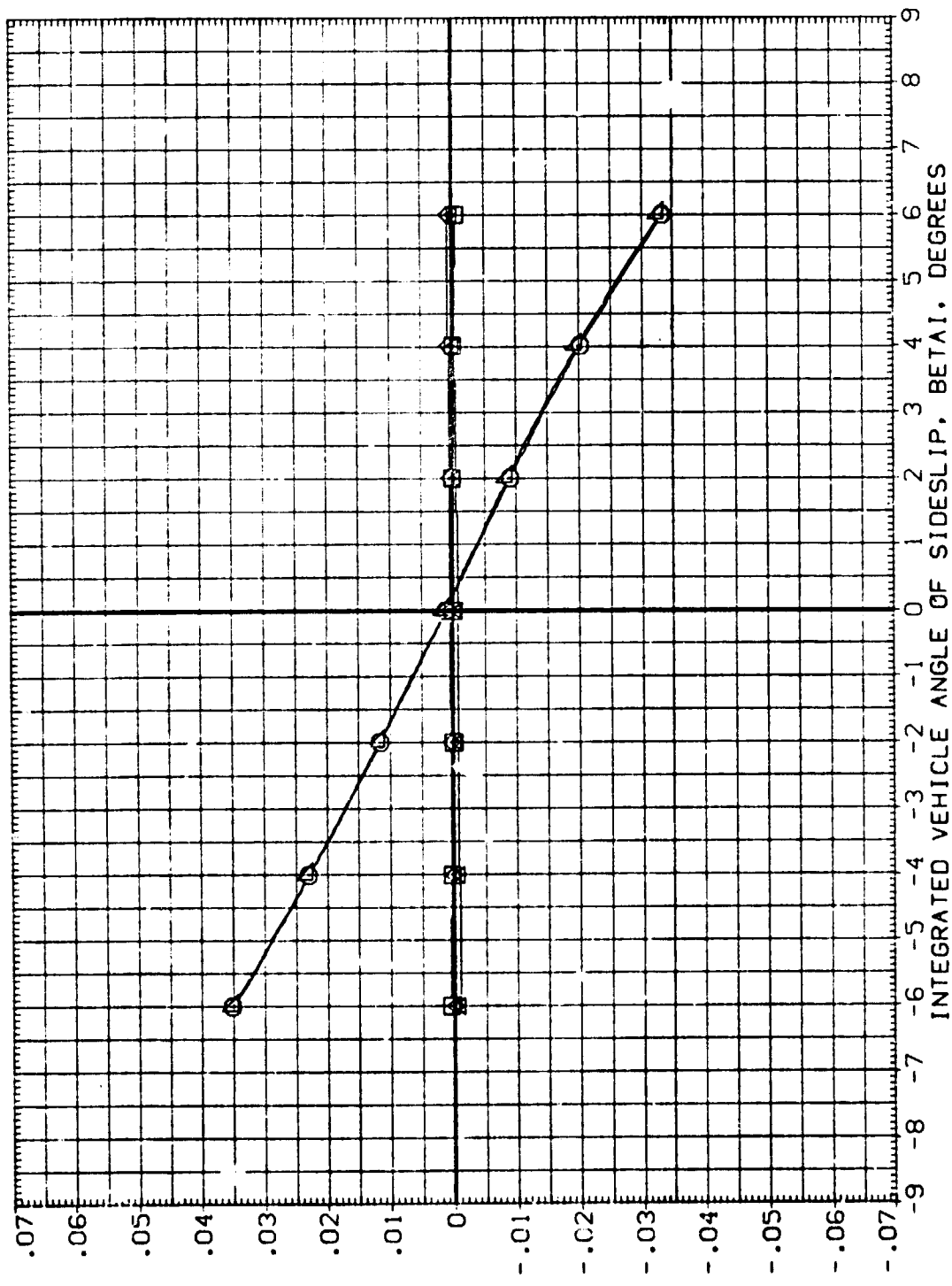


FIG. 21 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4

(F)ALPHA= 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-11	ELV-08	MACH	SPDBRK	REFERENCE INFORMATION
(LET136)	AMES97-019(1A81) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.000	.000	SREF 2690.0000 SO.FT.
(LET136)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LET136)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LET136)	AMES97-019(1A81) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.000	.000	XMRP 976.0000 IN.
(LET136)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.000	.000	YMRP .0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

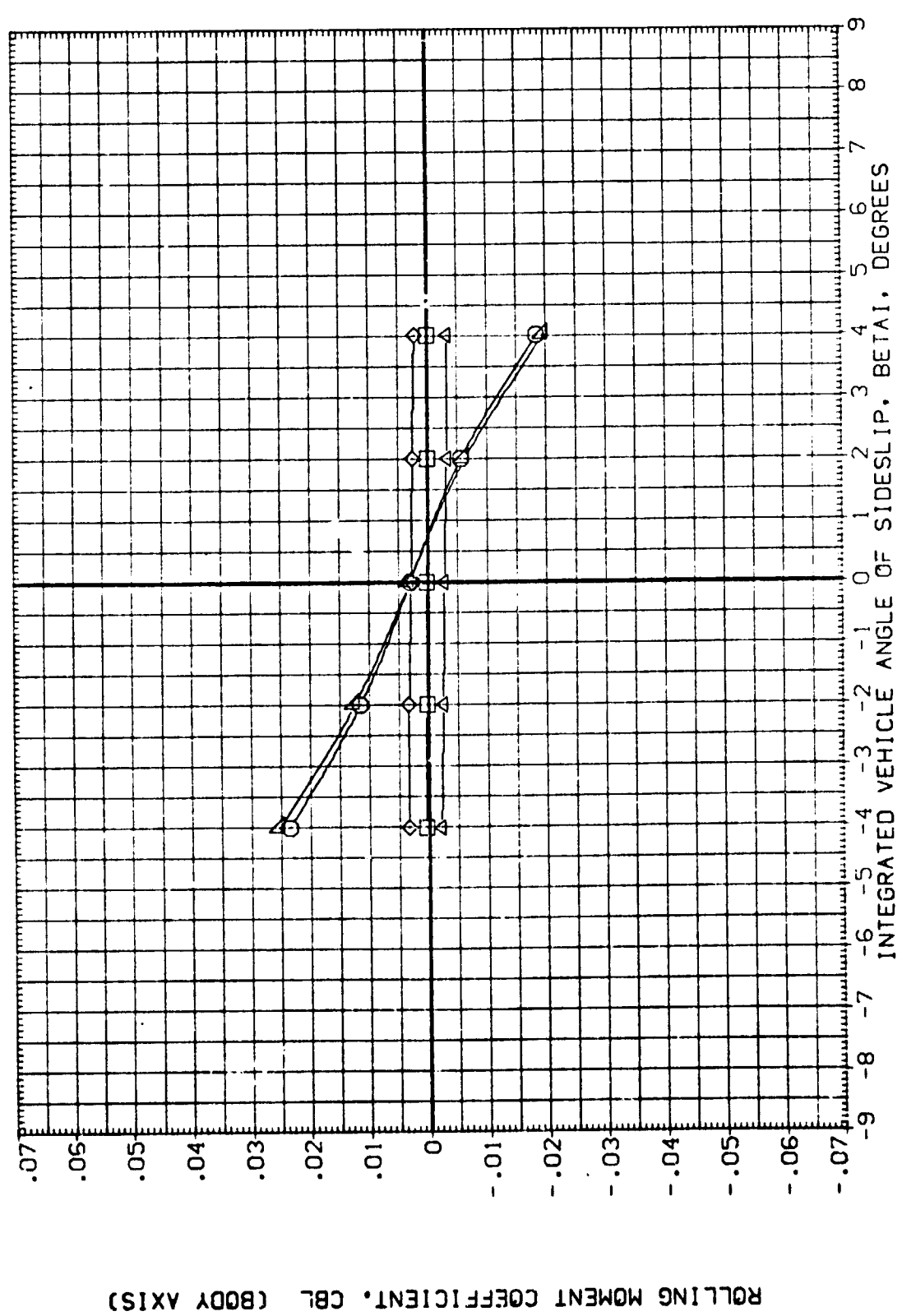


FIG. 21 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-19	ELV-28	MACH	SPDRK	REFERENCE INFORMATION
(LE1036)	AMES97-019(1A81) LVAP	8.000	-4.000	2.000	.000	SREF 2530.0000 SQ.FT.
(LE1136)	AMES97-019(1A81) LVAP	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LE1136)	AMES97-019(1A81) LVAP	8.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LE1136)	AMES97-019(1A81) LVAP	8.000	-4.000	2.000	.000	YMRP 976.0000 IN.
(LE1136)	AMES97-019(1A81) LVAP	8.000	-4.000	2.000	.000	YMRP 976.0000 IN.
(LE1136)	AMES97-019(1A81) LVAP	8.000	-4.000	2.000	.000	ZMRP 400.0000 IN.
						SCALE .0300

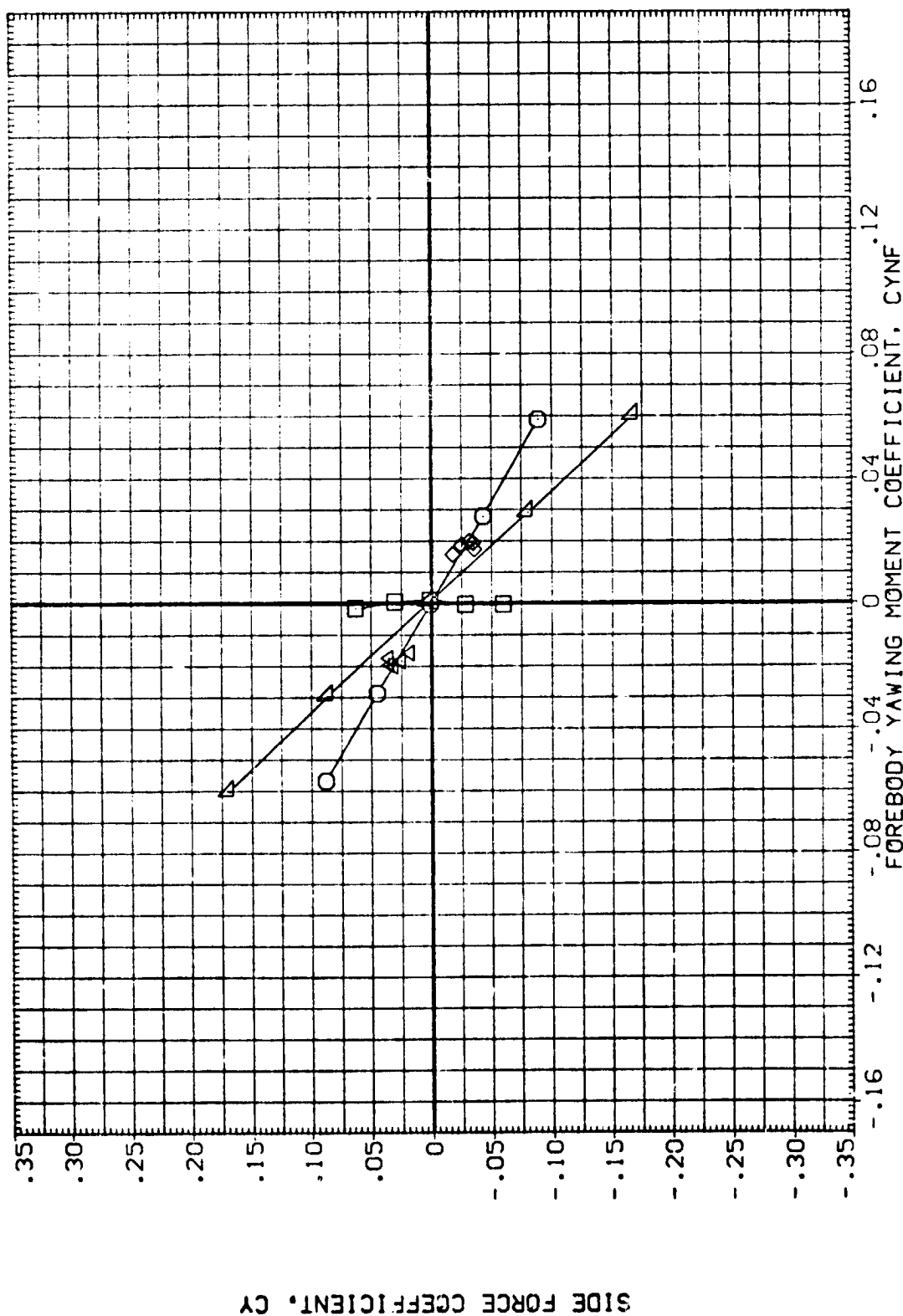


FIG. 21 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=2.0$ $DEY=8/-4$

(A) $\alpha = -6.00$

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LETT36)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SCALED	8.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LETT36)	AMES97-019(IAB1) LVAP TANK - ALL HL SCALED	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LETT36)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SCALED	8.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LETT36)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SCALED	8.000	-4.000	2.000	.000	YMRP 976.0000 IN.
(LETT36)	AMES97-019(IAB1) LVAP INT VEH ALL HL SCALED	8.000	-4.000	2.000	.000	ZMRP 400.0000 IN.
						SCALE .0300

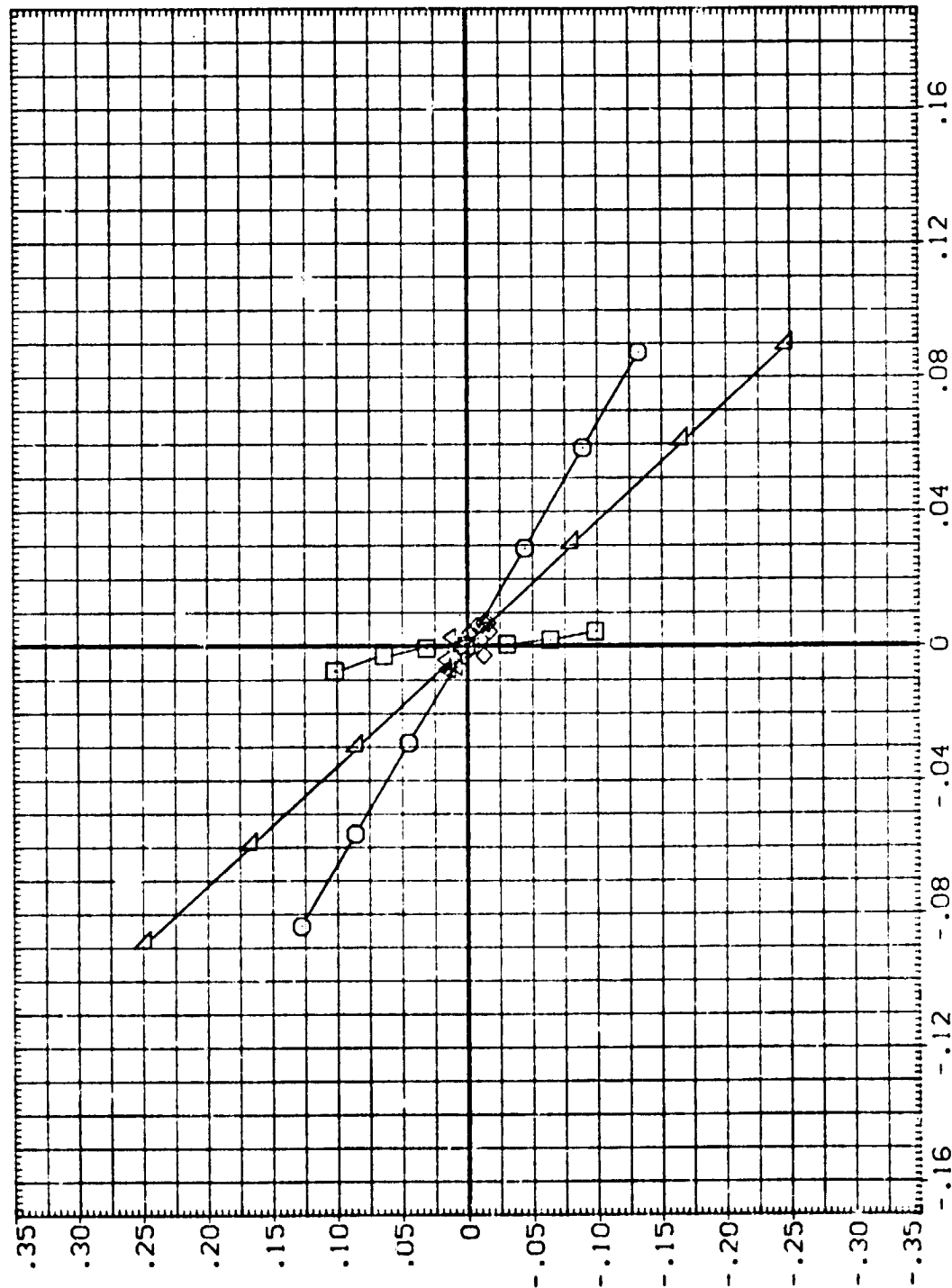


FIG. 21 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4

(B) ALPHA = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDRK	REFERENCE INFORMATION
(LE1036)	AME 597-019(IAB1) LVAP ORBITTER-ALL HL SEALED	8.000	-4.000	2.000	.000	SREF 2690.0000 SO.FT.
(LE1136)	AME 597-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LE1136)	AME 597-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LE1136)	AME 597-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.000	.000	YMRP 976.0000 IN.
(LE1136)	AME 597-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.000	.500	ZMRP 400.0000 IN.
						SCALE .0300

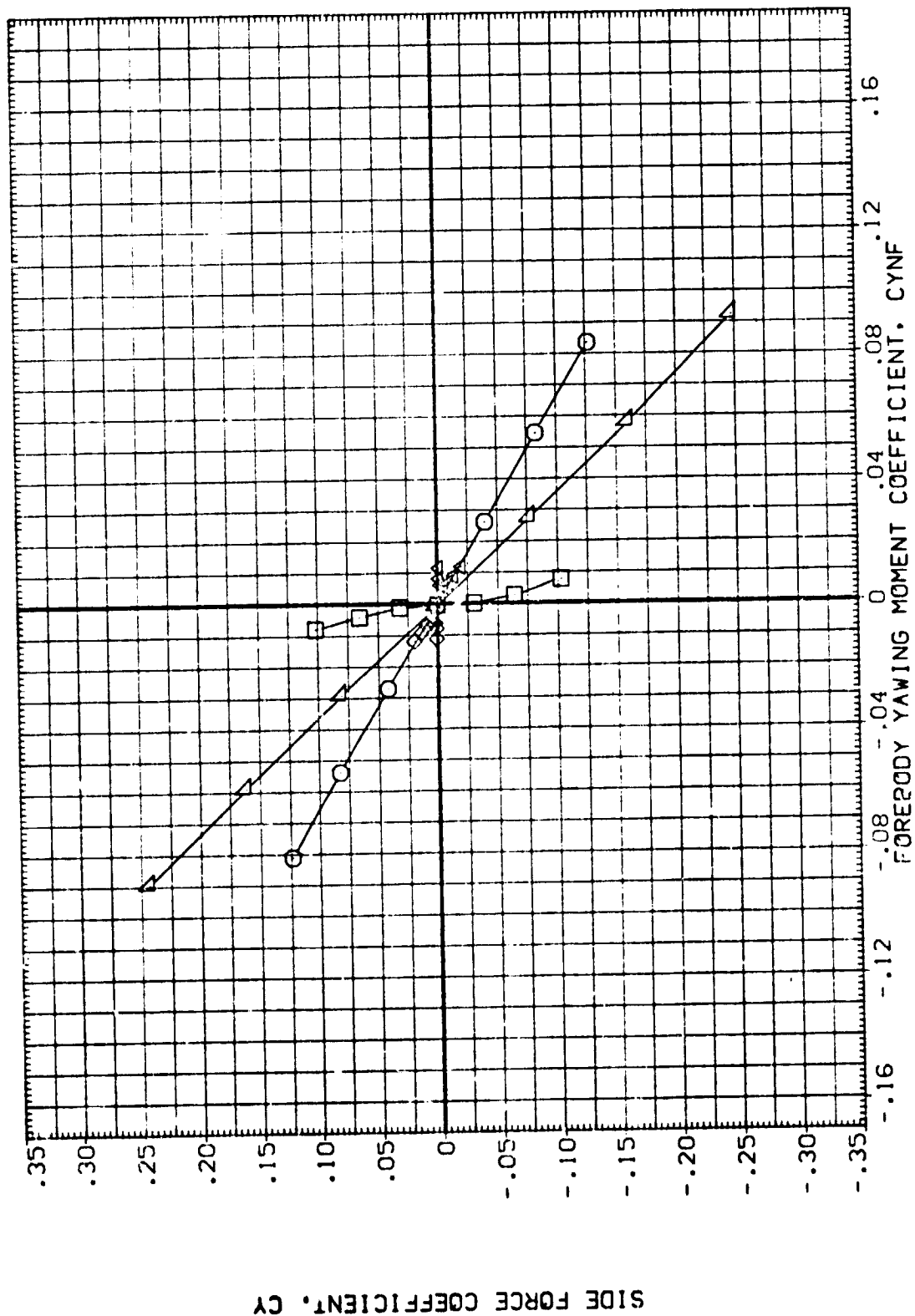


FIG. 21 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4
(C)ALPHA= -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LE1036)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.000	.000	SREF 2690.0000 SO.FT.
(LE1136)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LE1236)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LE1336)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.000	.000	XMRP 976.0000 IN.
(LE1436)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.000	.000	YMRP 400.0000 IN.
(LE1536)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.000	.000	ZMRP 400.0000 IN.
						SCALE .0300

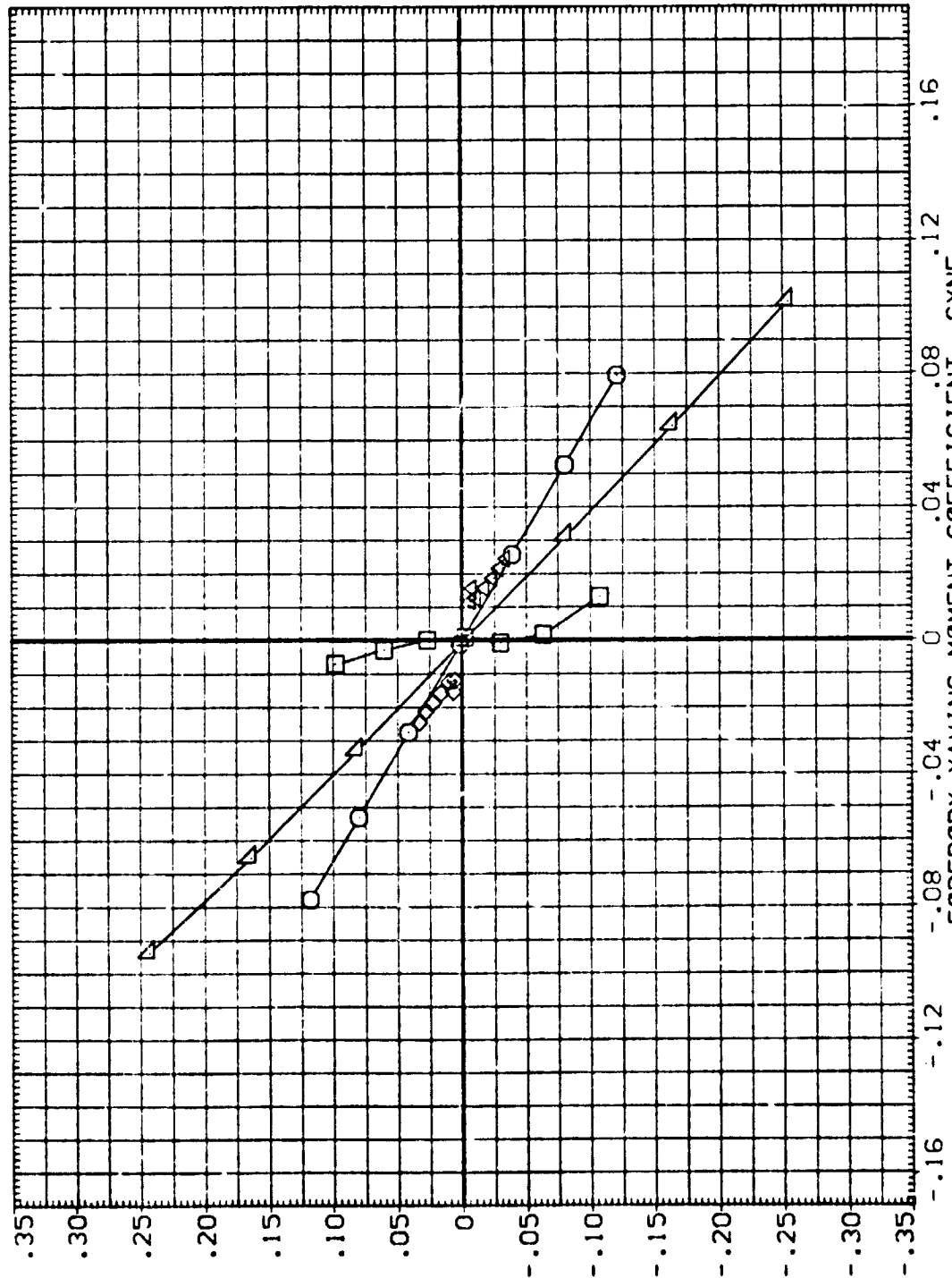


FIG. 21 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4

DATA SET SYMBOL

NAME	CONFIGURATION	DESCRIPTION
NAME597-019(IAB1)	LVAP	ORBITAL
NAME597-019(IAB1)	LVAP	TANK
NAME597-019(IAB1)	LVAP	L-SR
NAME597-019(IAB1)	LVAP	R-LR
NAME597-019(IAB1)	LVAP	INT VES

ER-ALL HL SEALED
- ALL HL SEALED
- ALL HL SEALED
ALL HL SEALED
ALL HL SEALED

ELV-18
8.000
8.000
8.000
8.000
8.000

ACH
2.000
2.000
2.000
2.000
2.000

SPDBRK
.000
.000
.000
.000
.000

REFERENCE INFORMATION	
SREF	2690.0000 SO.FT.
REF	1297.0000 IN.
BREF	1297.0000 IN.
XMXP	976.0000 IN. XI
YMRP	.0000 IN. YI
ZMRP	400.0000 IN. ZI
SCALE	.0300

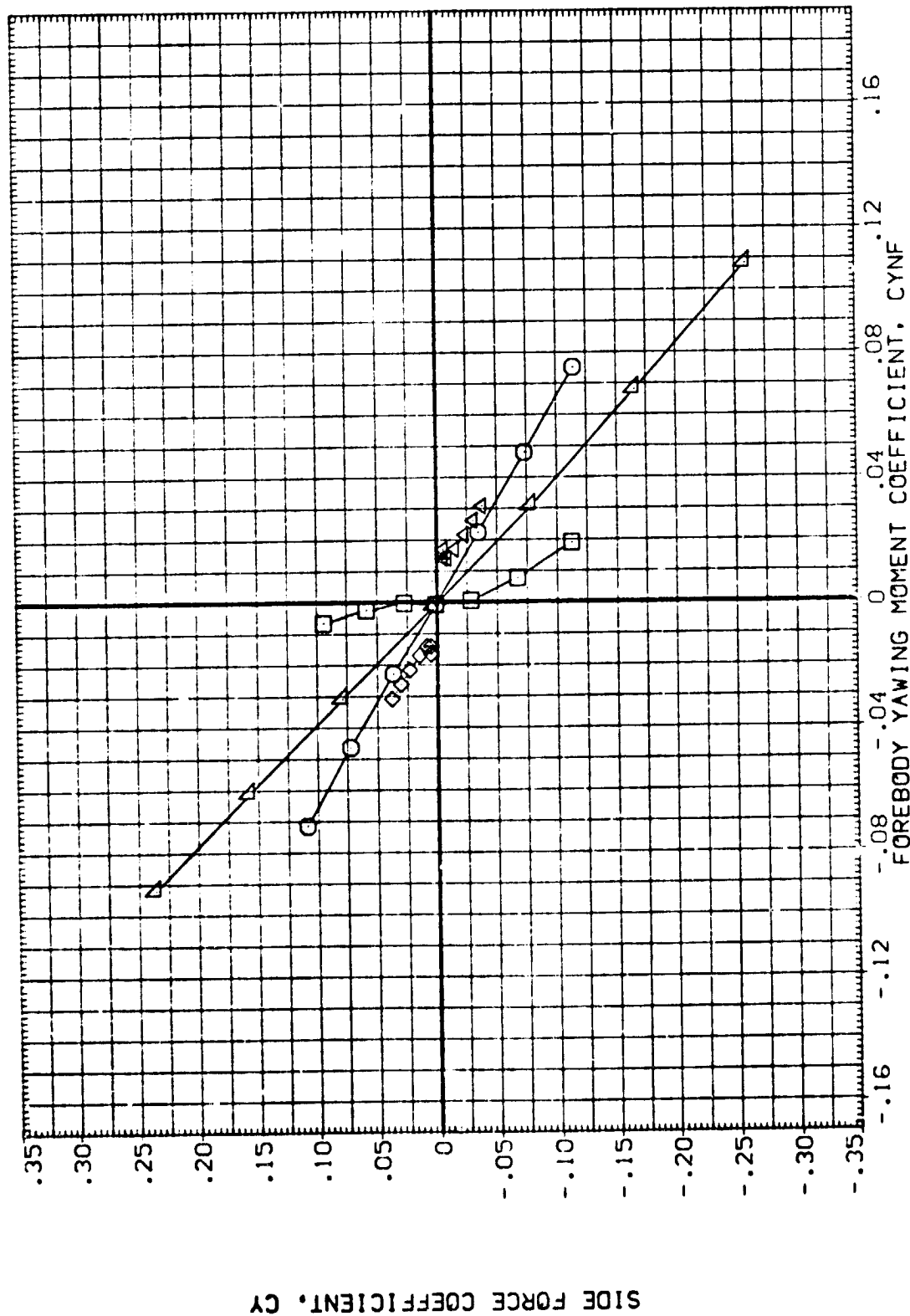


FIG. 21 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=2.0$ $DEV=8/-4$

$$(E)ALPHA I= 2.00$$

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	KACH	SPDBRK	REFERENCE INFORMATION
(LE1036)	AMES97-019(IAB1) LVAP ORBITTER-ALL HL SEALED	8.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LE1136)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LE1136)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LE1136)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.000	.000	XMRP 976.0030 IN. XT
(LE1136)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.000	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

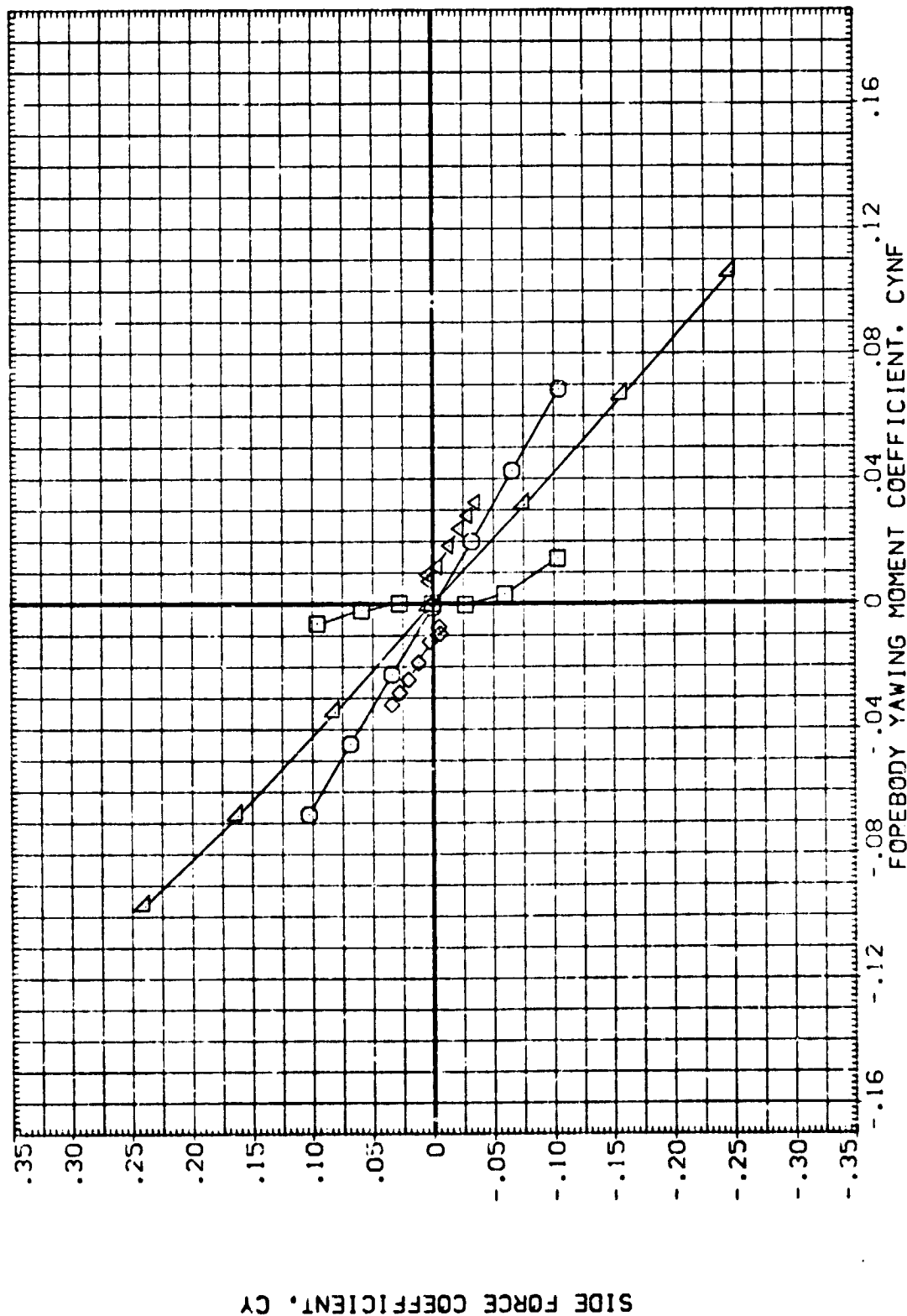


FIG. 21 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=2.0$ $DEV=8/-4$

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LE1036)	AMES97-019(1A81) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.000	.000	SPEE 2690.0000 SQ.FT.
(LE1136)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LE1135)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LE1436)	AMES97-019(1A81) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.000	.000	XMRP 976.0000 IN.
(LE1435)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.000	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

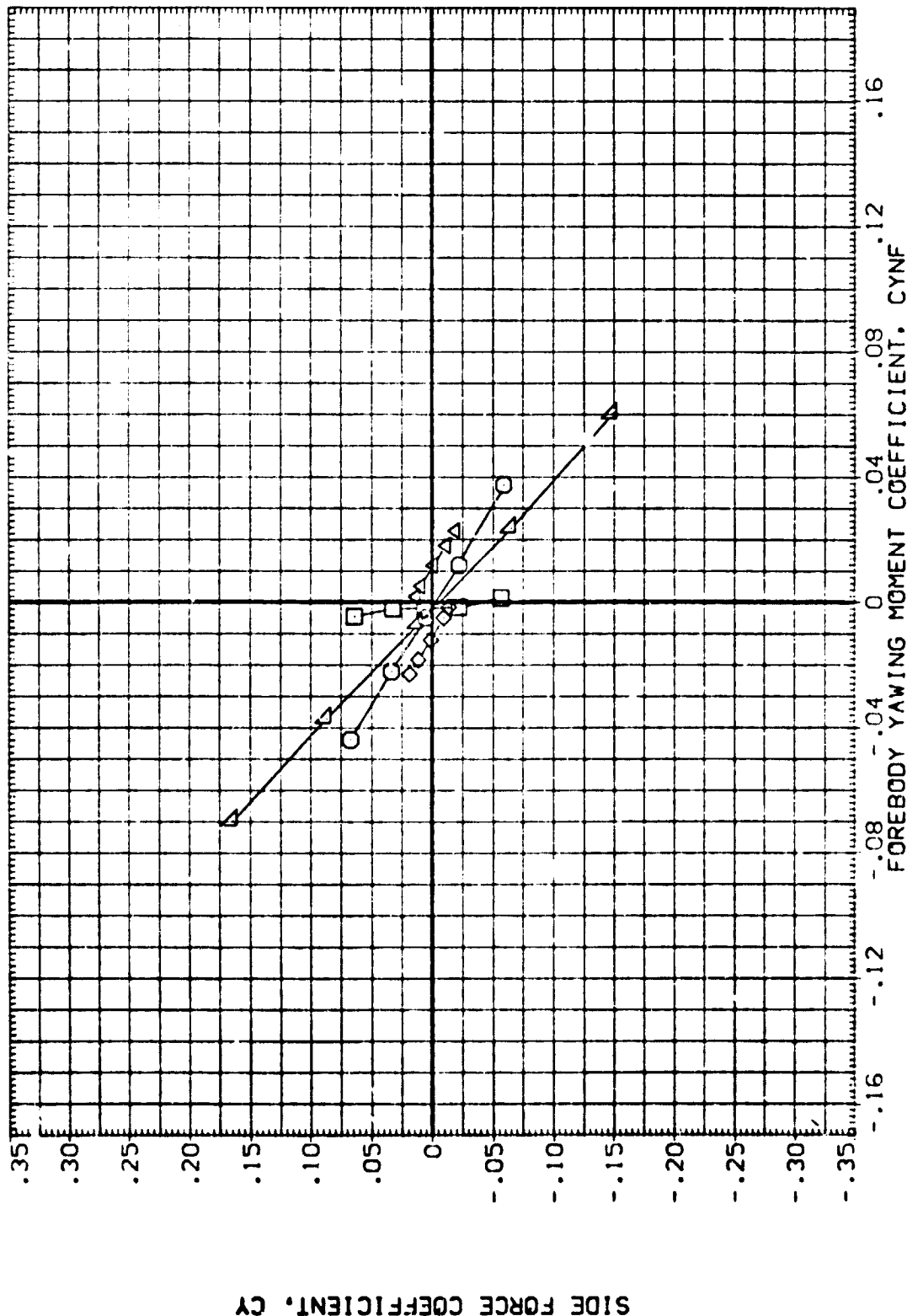


FIG. 21 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4

(G)ALPHA= 6.00

REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPOBRK	REFERENCE INFORMATION
(LE1036)	AME597-019(IAB1) LVAP CRBTER-ALL HL SEALED	8.000	-4.000	2.000	.000	SREF 2690.0000 SO.FT.
(LE1136)	AME597-013(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LE1135)	AME597-013(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LE1135)	AME597-013(IAB1) LVAP R-SRB - ALL HL SEALED	8.000	-4.000	2.000	.000	XMRP 976.0000 IN.
(LE1136)	AME597-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.000	.000	ZMRP 400.0000 IN.
						SCALE .0300

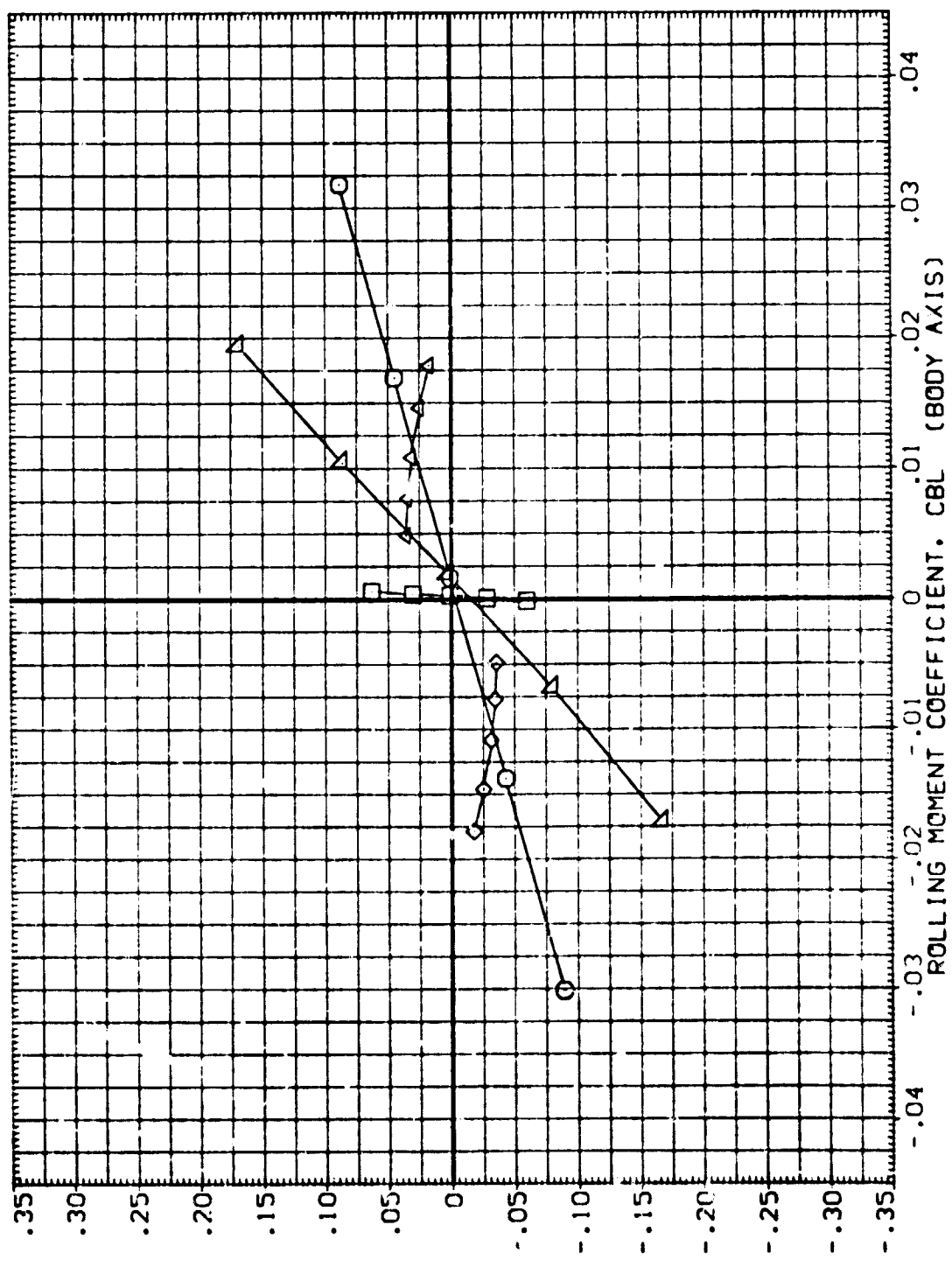


FIG. 21 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4
(A) ALPHA = -6.00 PAGE 491

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDRK	REFERENCE INFORMATION
(LET136)	AMES97-019(IAB1) LVAP ORBITTER-ALL ML SEALED	8.000	-4.000	2.000	.000	SREF 2692.0000 SQ.FT.
(LET136)	AMES97-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LET136)	AMES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	8.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LET136)	AMES97-019(IAB1) LVAP R-LRB - ALL ML SEALED	8.000	-4.000	2.000	.000	YMRP 976.0000 IN.
(LET136)	AMES97-019(IAB1) LVAP INT VEH ALL ML SEALED	8.000	-4.000	2.000	.000	ZMRP 400.0000 IN.
						SCALE .0300

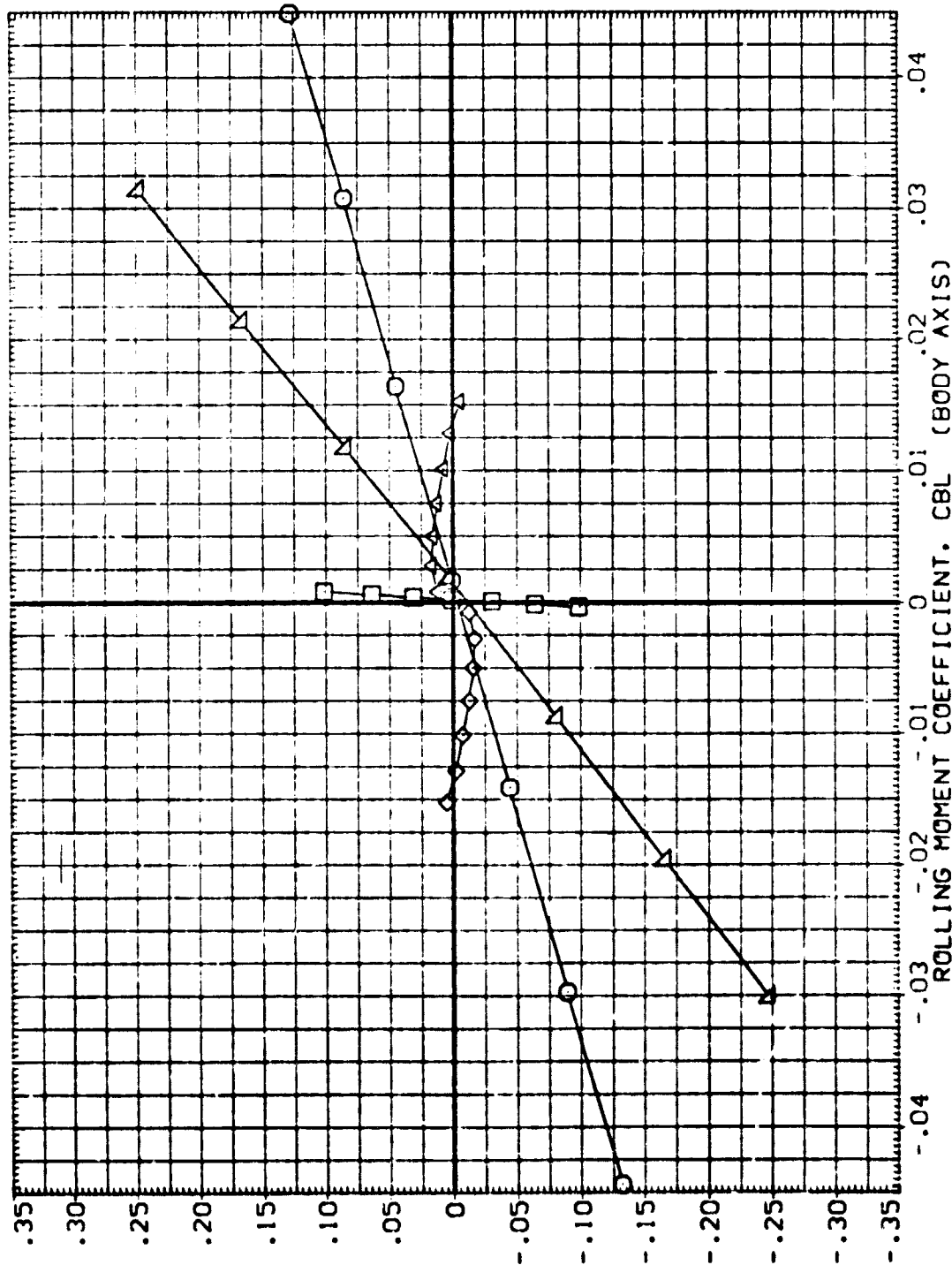


FIG. 21 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=2.0$ DEV=8/-4

(B)ALPHA=-4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-DB	MACH	SPOBRK	REFERENCE INFORMATION
(LE1036)	AME 597-019(1AB1) LVAP ORBITER-ALL ML SEALED	8.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LE1136)	AME 597-019(1AP1) LVAP TANK - ALL ML SEALED	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LE1136)	AME 597-019(1AB1) LVAP L-SDB - ALL ML SEALED	8.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LE1136)	AME 597-019(1AB1) LVAP R-LRB - ALL ML SEALED	8.000	-4.000	2.000	.000	XMRP 976.0000 IN.
(LE1136)	AME 597-019(1AB1) LVAP INT VEH - ALL ML SEALED	8.000	-4.000	2.000	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

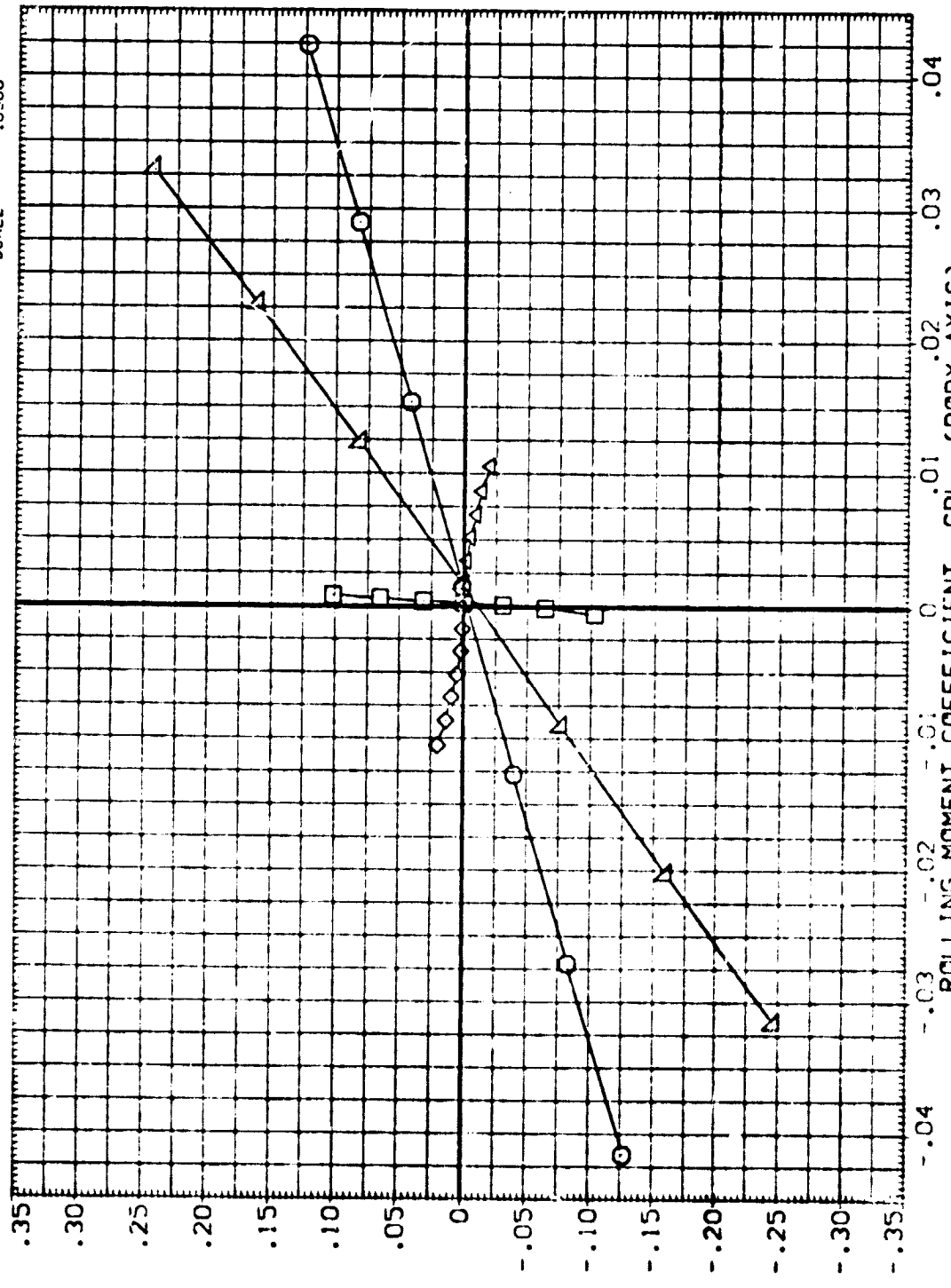


FIG. 21 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4
 (C)ALPHA= -2.00
 PAGE 493

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LE1036)	AME597-019(1A81) LVAP ORBITER-ALL ML SEALED	8.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LE1136)	AME597-019(1A81) LVAP TANK - ALL ML SEALED	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LE1236)	AME597-019(1A81) LVAP L-SRB - ALL ML SEALED	8.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LE1336)	AME597-019(1A81) LVAP R-LRB - ALL ML SEALED	8.000	-4.000	2.000	.000	YMRP 976.0000 IN.
(LE1436)	AME597-019(1A81) LVAP INT VEH ALL ML SEALED	8.000	-4.000	2.000	.000	ZMRP 400.0000 IN.
						SCALE .0300

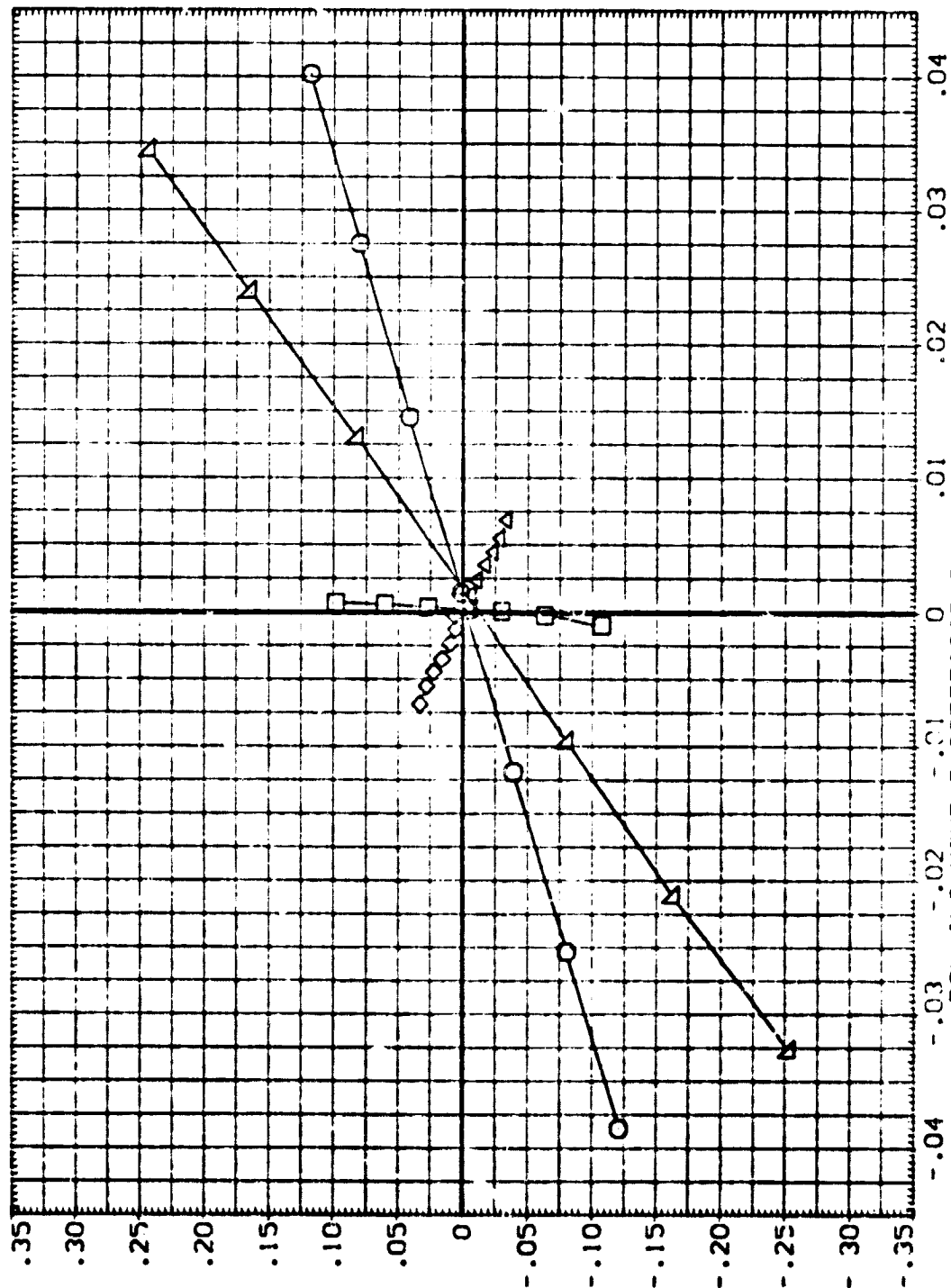


FIG. 21 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4

(D)ALPIA1= .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-2B	MACH	SYDBRK	REFERENCE INFORMATION
(LE1C36)	AMES97-019(1A81) LVAP ORBITER-ALL HL SEALED	0.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LE1Y36)	AMES97-019(1A81) LVAP TASK - ALL HL SEALED	0.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LE1L36)	AMES97-019(1A81) LVAP L-CRB - ALL HL SEALED	0.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LE1B36)	AMES97-019(1A81) LVAP R-LRB - ALL HL SEALED	0.000	-4.000	2.000	.000	YMRP 976.0000 IN.
(LE1136)	AMES97-019(1A81) LVAP INT VEM ALL HL SEALED	0.000	-4.000	2.000	.000	ZMRP .0000 IN.
						SCALE 400.0000 IN. ZT

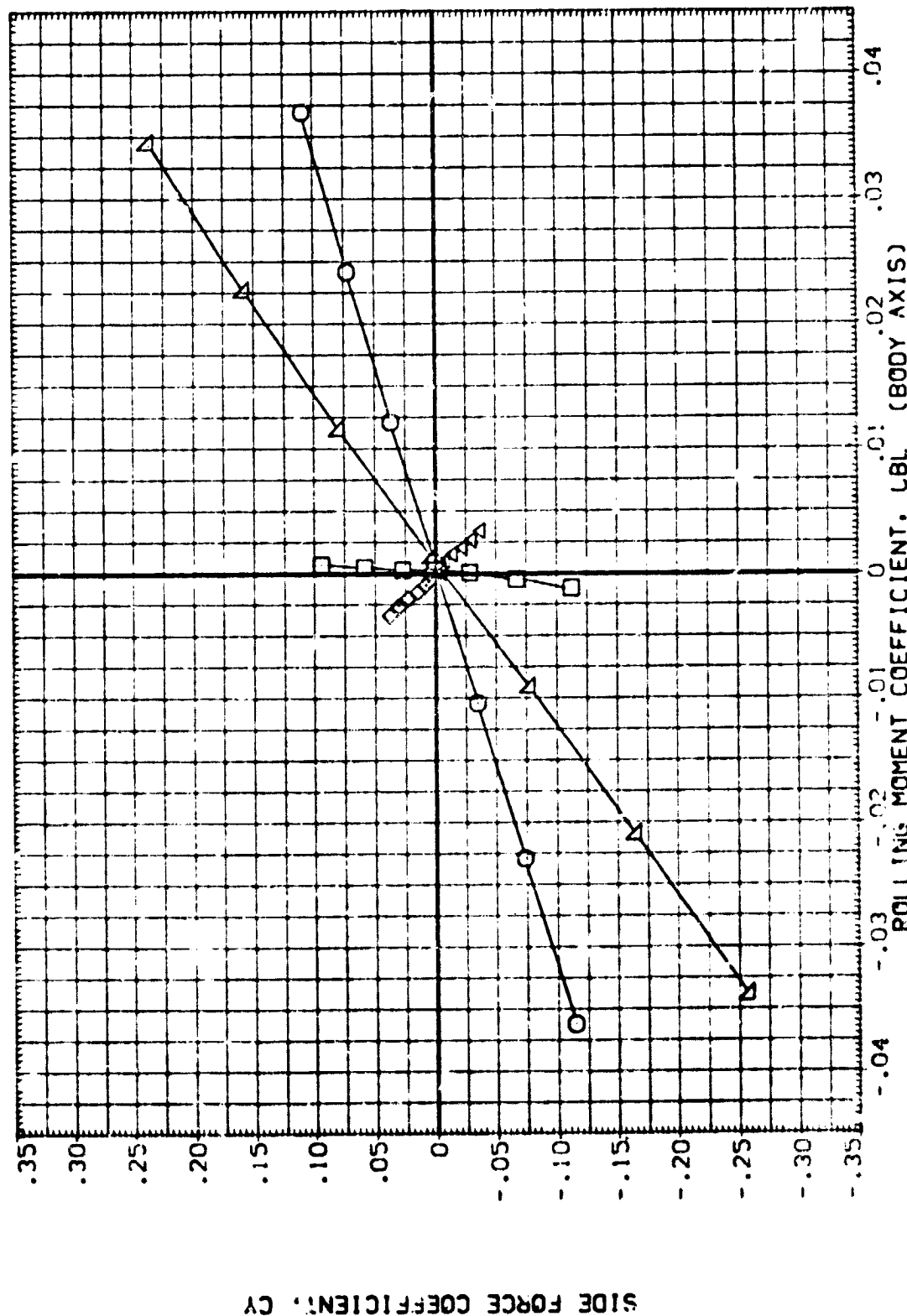


FIG. 21 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4
(E)ALPHA= 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LE1036)	AMES97-019(1A81) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LE1136)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.000	.000	LREF 1397.0000 IN.
(LE1236)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.000	.000	BREF 1397.0000 IN.
(LE1336)	AMES97-019(1A81) LVAP R-LRB ALL HL SEALED	8.000	-4.000	2.000	.000	XMRP 976.0000 IN. XT
(LE1436)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.000	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

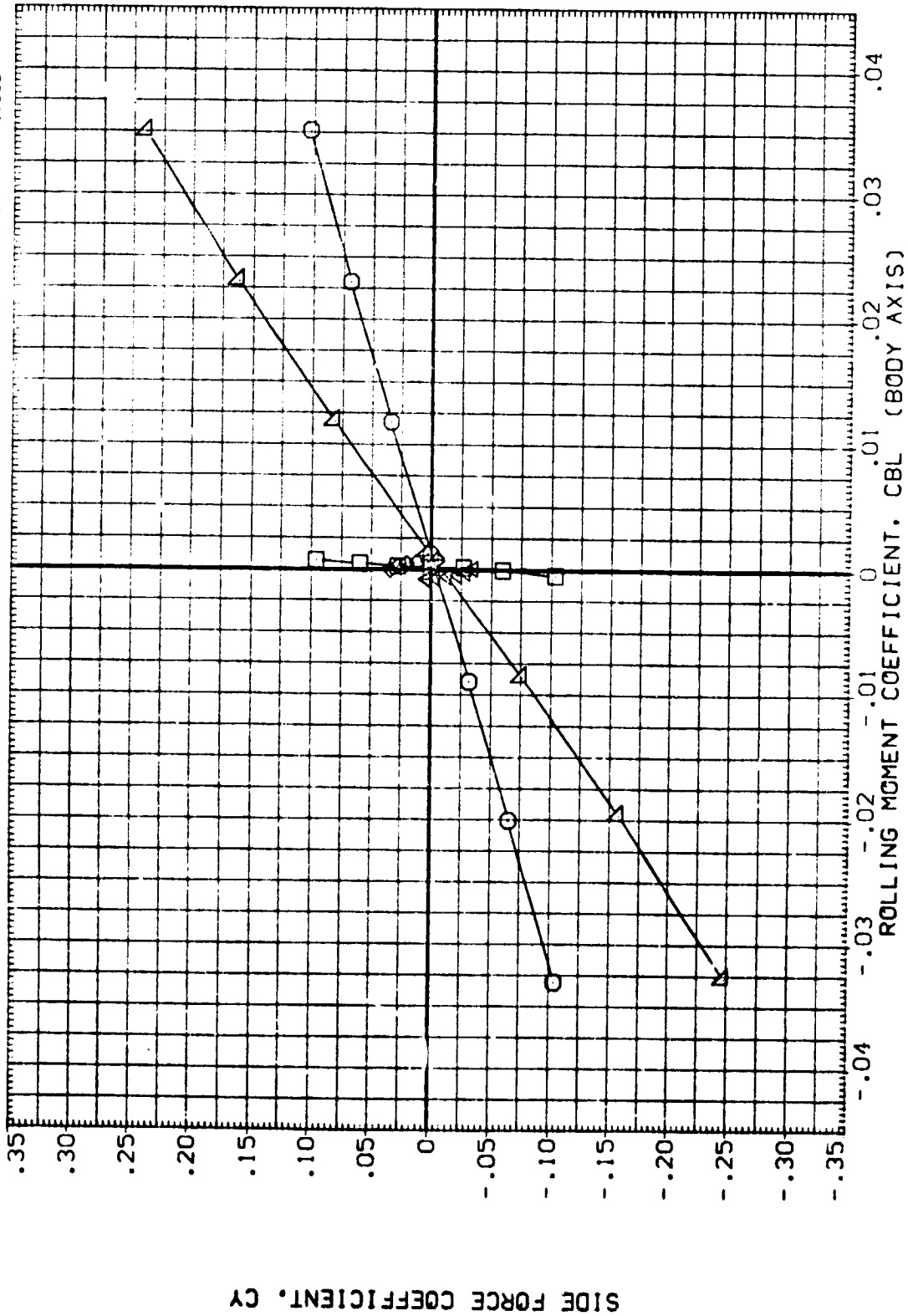


FIG. 21 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4
(F)ALPHA= 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDBRK	REFERENCE INFORMATION
(LE1036)	AMES97-019(1A81) LVAP	8.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LE1136)	AMES97-019(1A81) LVAP	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LE1L36)	AMES97-019(1A81) LVAP	8.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LE1R36)	AMES97-019(1A81) LVAP	8.000	-4.000	2.000	.000	YMRP 976.0000 IN.
(LE136)	AMES97-019(1A81) LVAP	8.000	-4.000	2.000	.000	YMRP 400.0000 IN.
						SCALE .0300

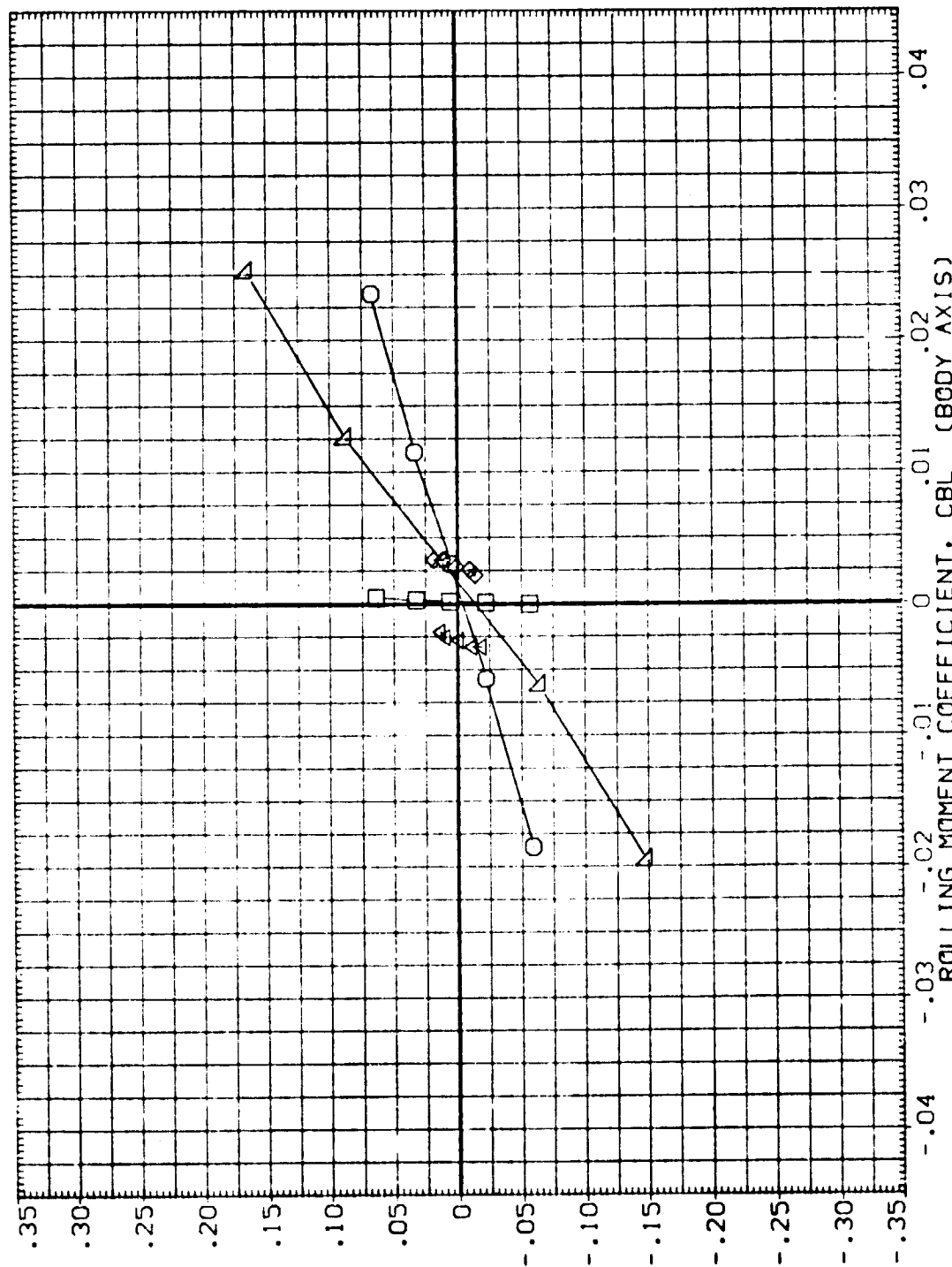


FIG. 21 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/-4

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LETC40)	AMES97-019C(IAB1) LVAP ORBITER-ALL HL SEALED	.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LETT40)	AMES97-019C(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.000	.000	LREF 1297.0000 IN.
(LETL40)	AMES97-019C(IAB1) LVAP L-SPB - ALL HL SEALED	.000	.000	2.000	.000	BREF 1297.0000 IN.
(LETR40)	AMES97-019C(IAB1) LVAP R-LRB - ALL HL SEALED	.000	.000	2.000	.000	YMRP 976.0000 IN. XT
(LETT40)	AMES97-019C(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.000	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

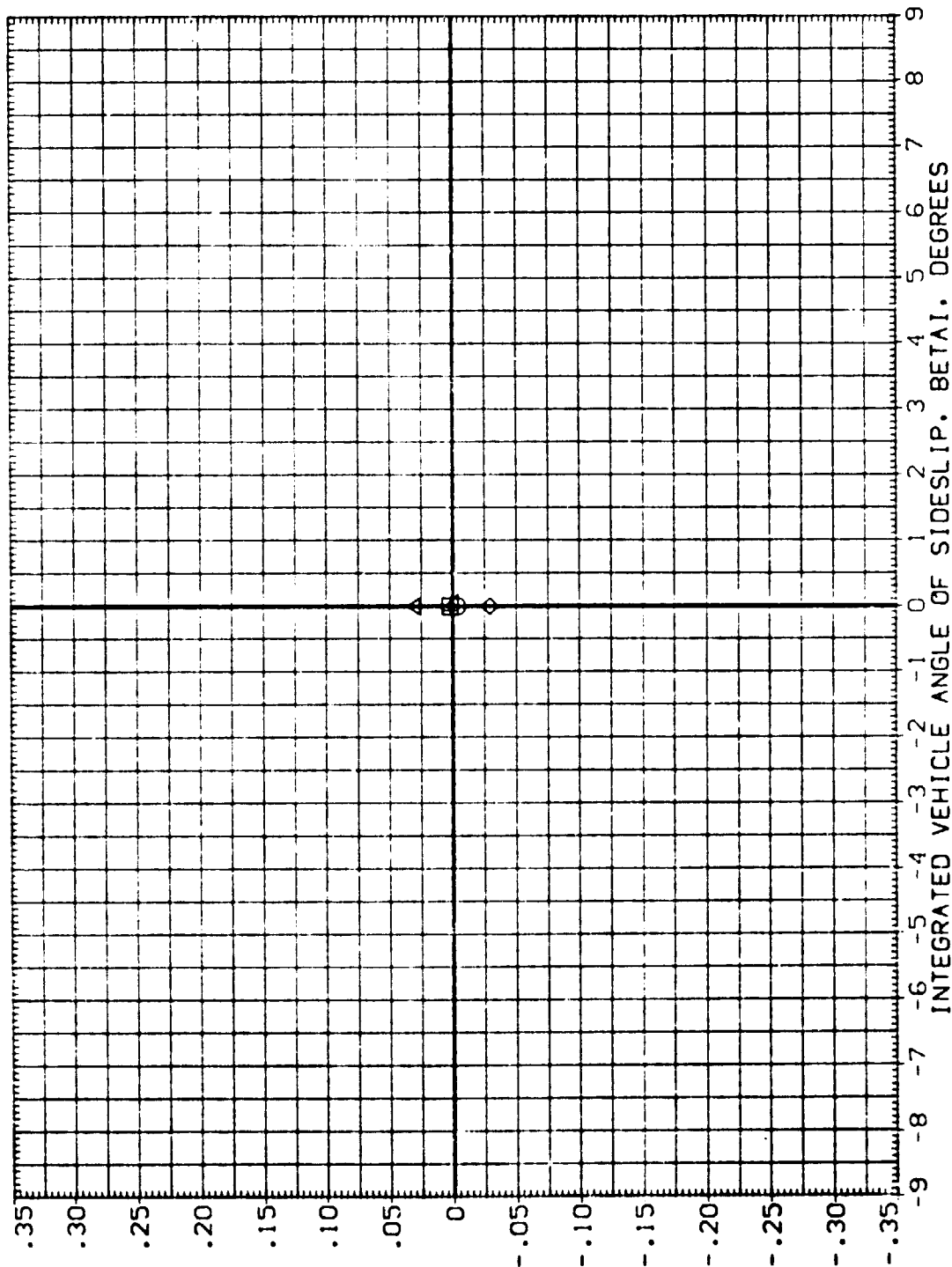


FIG. 22 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=0/0

(A) ALPHA = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION			
(LET040)	AMES97-019(IAB1) LVAP	.000	.000	2.000	.000	SREF	2690.0000	SQ.FT.	
(LET140)	AMES97-019(IAB1) LVAP	.000	.000	2.000	.000	LREF	1297.0000	IN.	
(LET140)	AMES97-019(IAB1) LVAP	.000	.000	2.000	.000	BREF	1297.0000	IN.	XT
(LET140)	AMES97-019(IAB1) LVAP	.000	.000	2.000	.000	YMRP	976.0000	IN.	YT
(LET140)	AMES97-019(IAB1) LVAP	.000	.000	2.000	.000	ZMRP	400.0000	IN.	ZT
						SCALE	.0300		

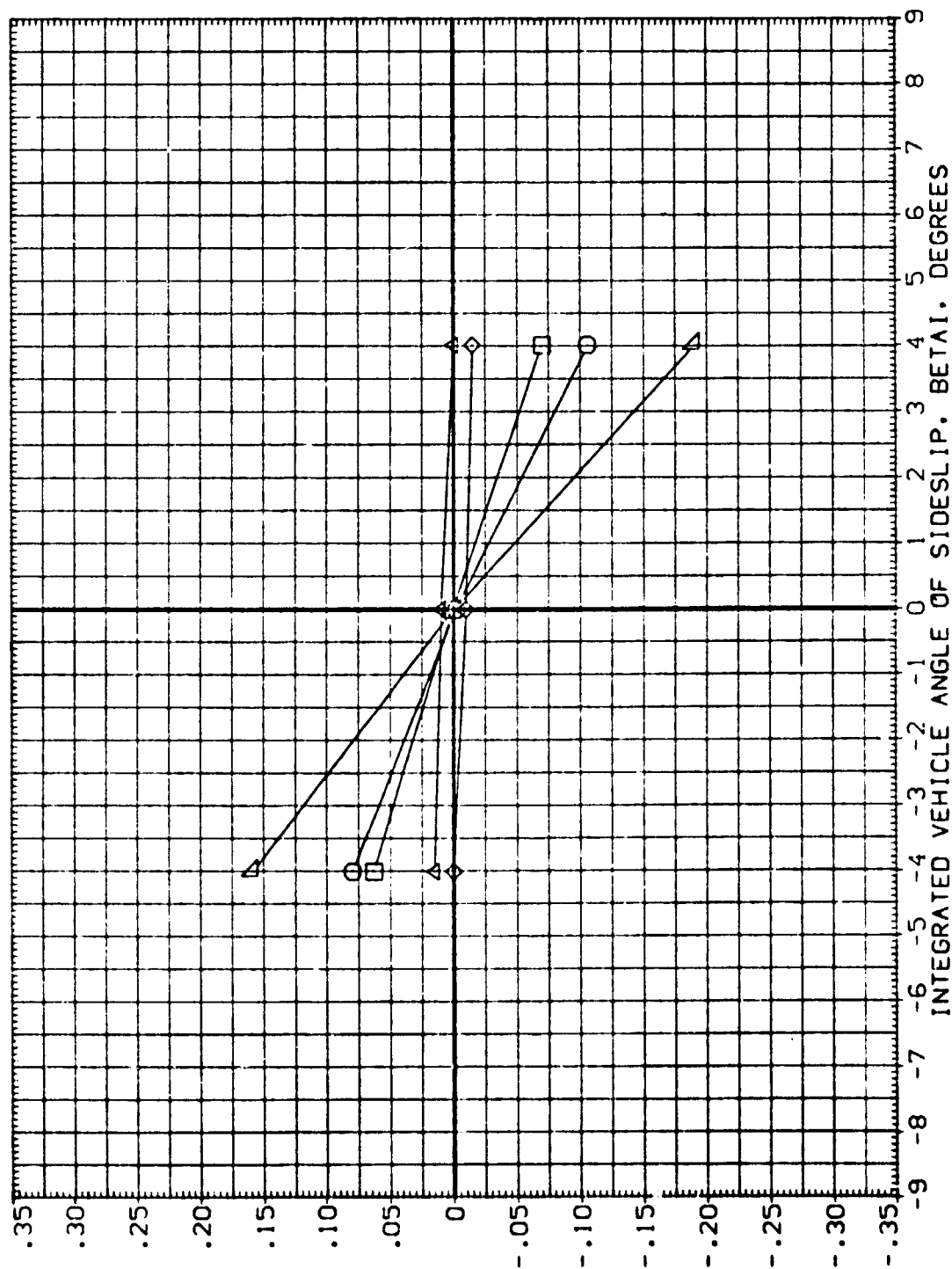


FIG. 22 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=0/0
(B) ALPHA = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDBRK	REFERENCE INFORMATION
(LET040)	AME597-019(1A81) LVAP ORBITER-ALL ML SEALED	.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LET140)	AME597-019(1A81) LVAP TANK - ALL ML SEALED	.000	.000	2.000	.000	LREF 1297.0000 IN.
(LET140)	AME597-019(1A81) LVAP L-SRB - ALL ML SEALED	.000	.000	2.000	.000	BREF 1297.0000 IN.
(LET140)	AME597-019(1A81) LVAP R-LRB ALL ML SEALED	.000	.000	2.000	.000	XMRP 976.0000 IN.
(LET140)	AME597-019(1A81) LVAP INT VEH ALL ML SEALED	.000	.000	2.000	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

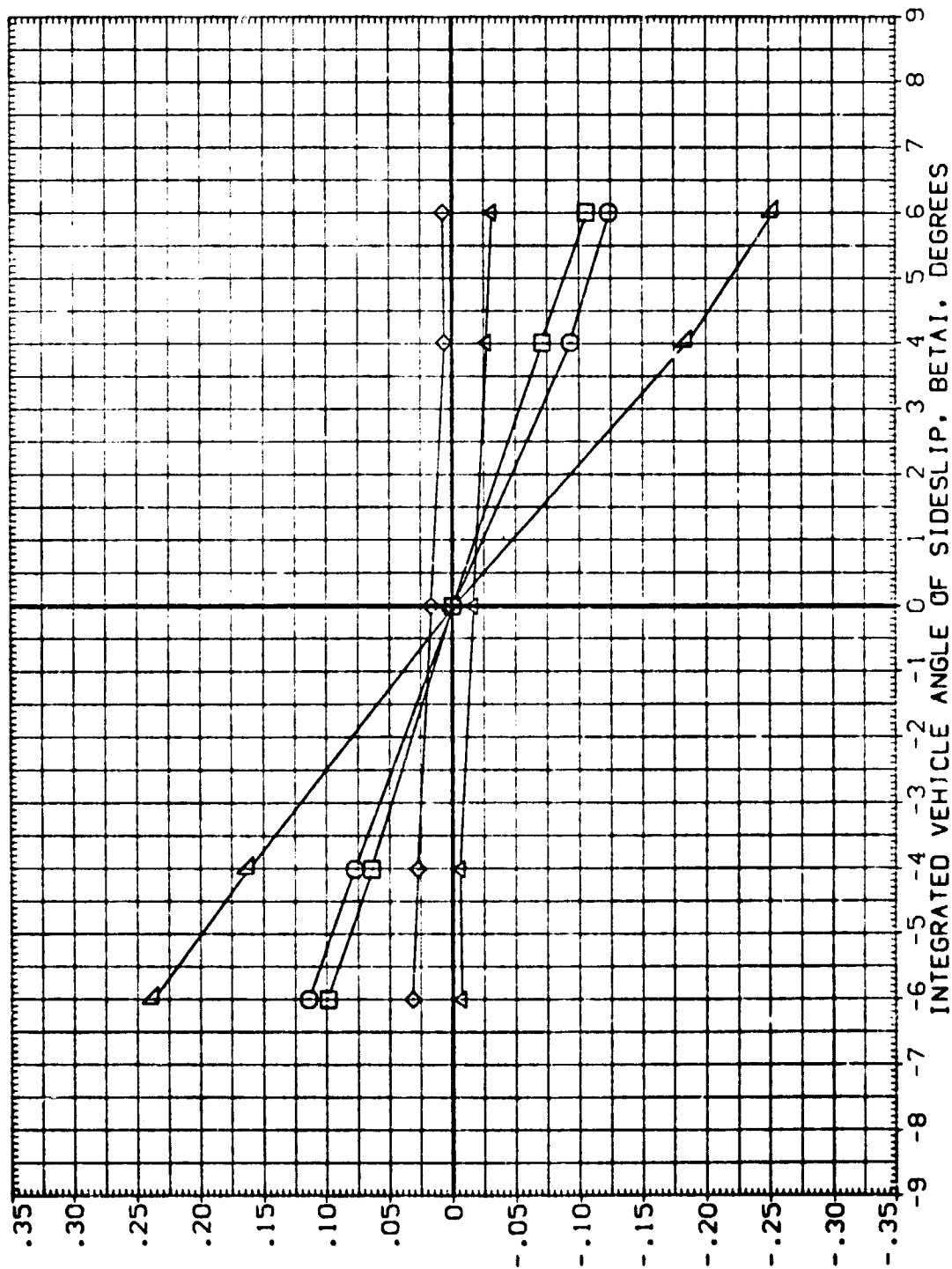


FIG. 22 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=0/0

(C) ALPHA I = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(LET040)	AMES97-019(IAB1) LVAP ORBATER-ALL HL SEALED	.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LET140)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.000	.000	LREF 1297.0000 IN.
(LET140)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.000	.000	BREF 1297.0000 IN.
(LET140)	AMES97-019(IAB1) LVAP R-LPB - ALL HL SEALED	.000	.000	2.000	.000	XMRP 976.0000 IN. XT
(LET140)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.000	.000	ZMRP 400.0000 IN. ZY
						SCALE .0300

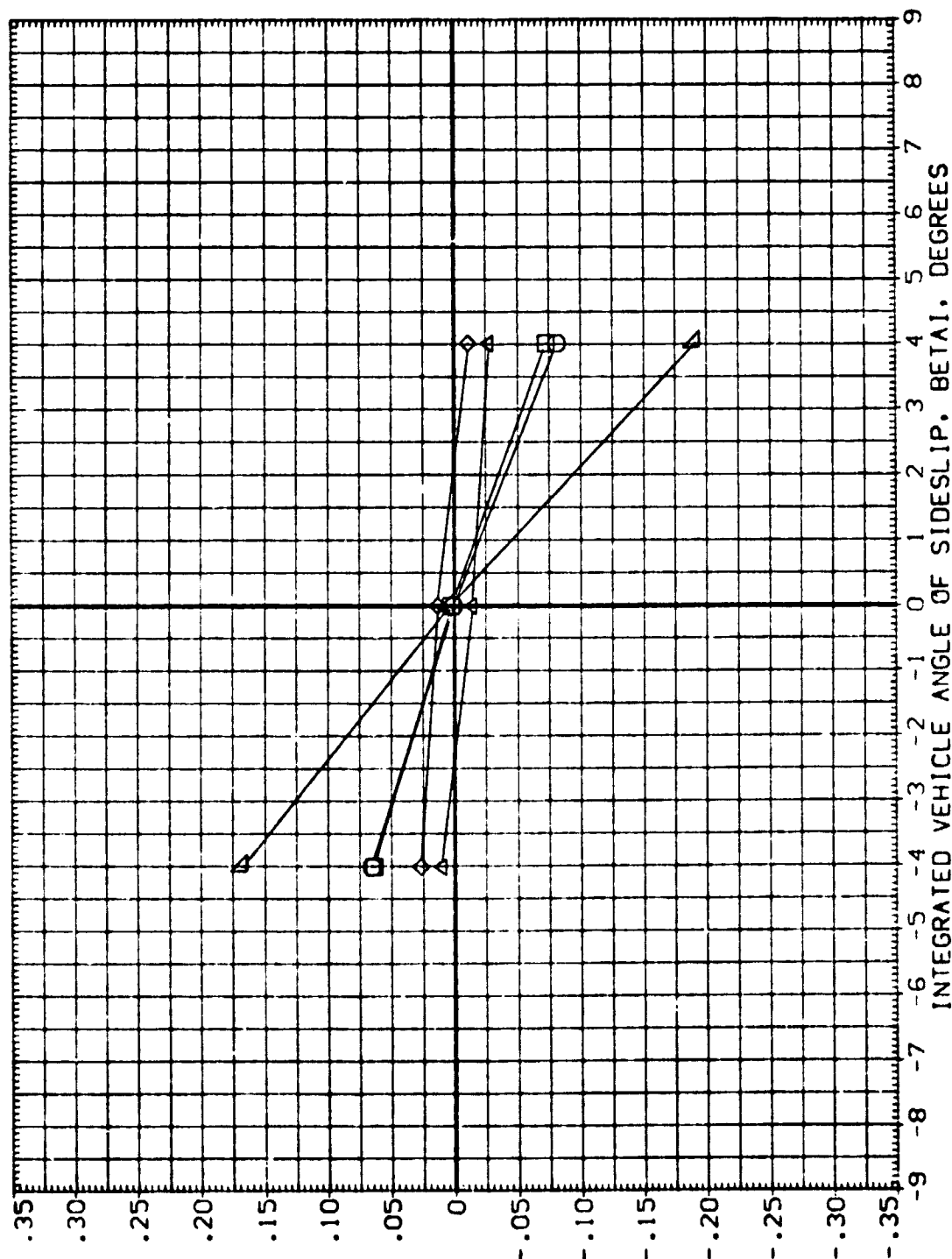


FIG. 22 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=2.0$ $DEV=0/0$

(D) ALPHA = 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-CB	MACH	SPDRK	REFERENCE INFORMATION
(LE1040)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LE1140)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.000	.000	LREF 1297.0000 IN.
(LE1L40)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.000	.000	BREF 1297.0000 IN.
(LE1R40)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	.000	.000	2.000	.000	VMRP 976.0000 IN. XT
(LE1T40)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.000	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

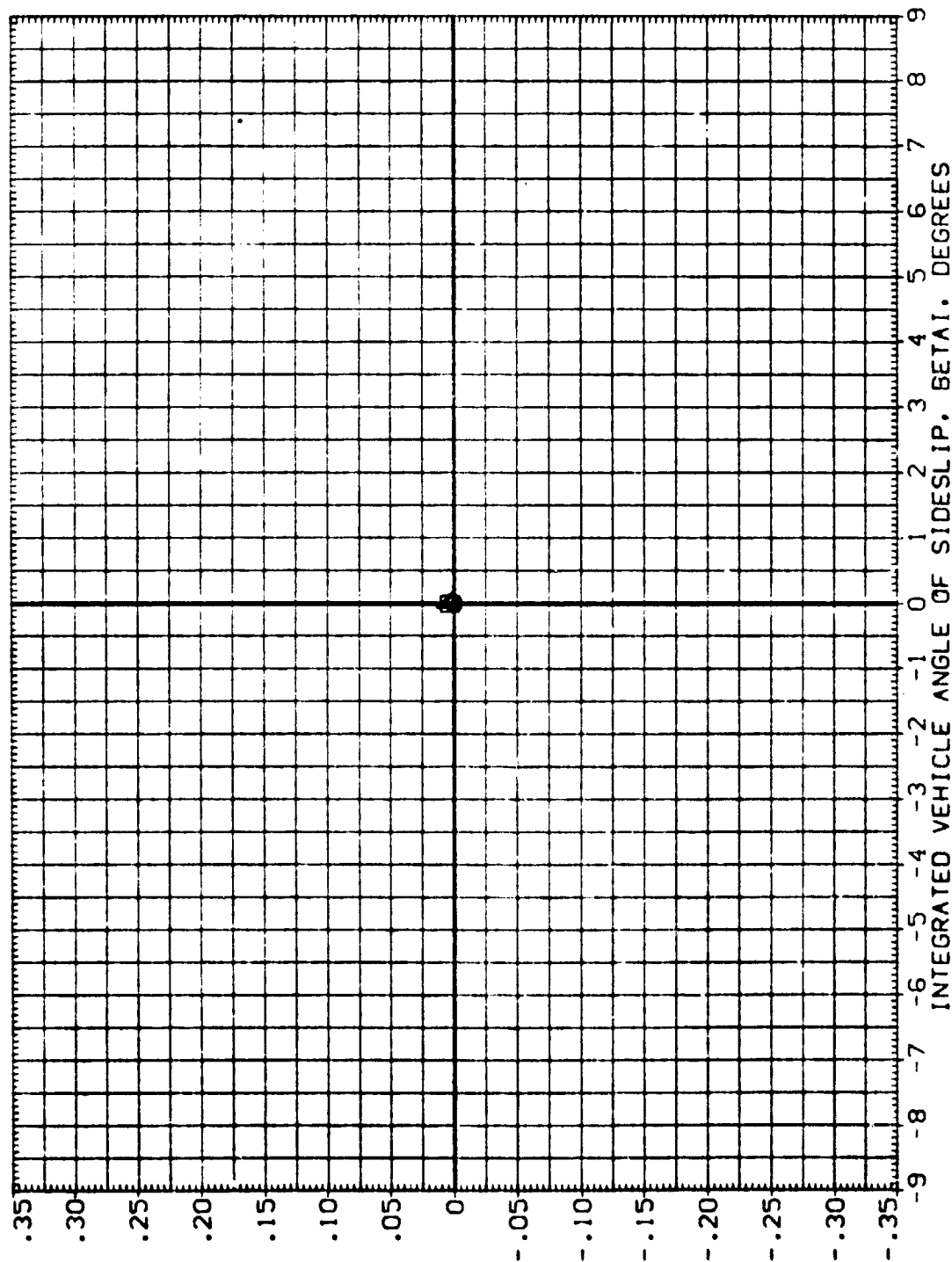


FIG. 22 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=0/0
(E)ALPHA1= 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDBRK	REFERENCE INFORMATION
(LE1040)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SCALED	.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LE1140)	AMES97-019(IAB1) LVAP TANK - ALL HL SCALED	.000	.000	2.000	.000	LREF 1297.0000 IN.
(LE1440)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SCALED	.000	.000	2.000	.000	BREF 1297.0000 IN.
(LE1440)	AMES97-019(IAB1) LVAP R-SRB - ALL HL SCALED	.000	.000	2.000	.000	XMRP 976.0000 IN. XT
(LE1140)	AMES97-019(IAB1) LVAP INT VEH ALL HL SCALED	.000	.000	2.000	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

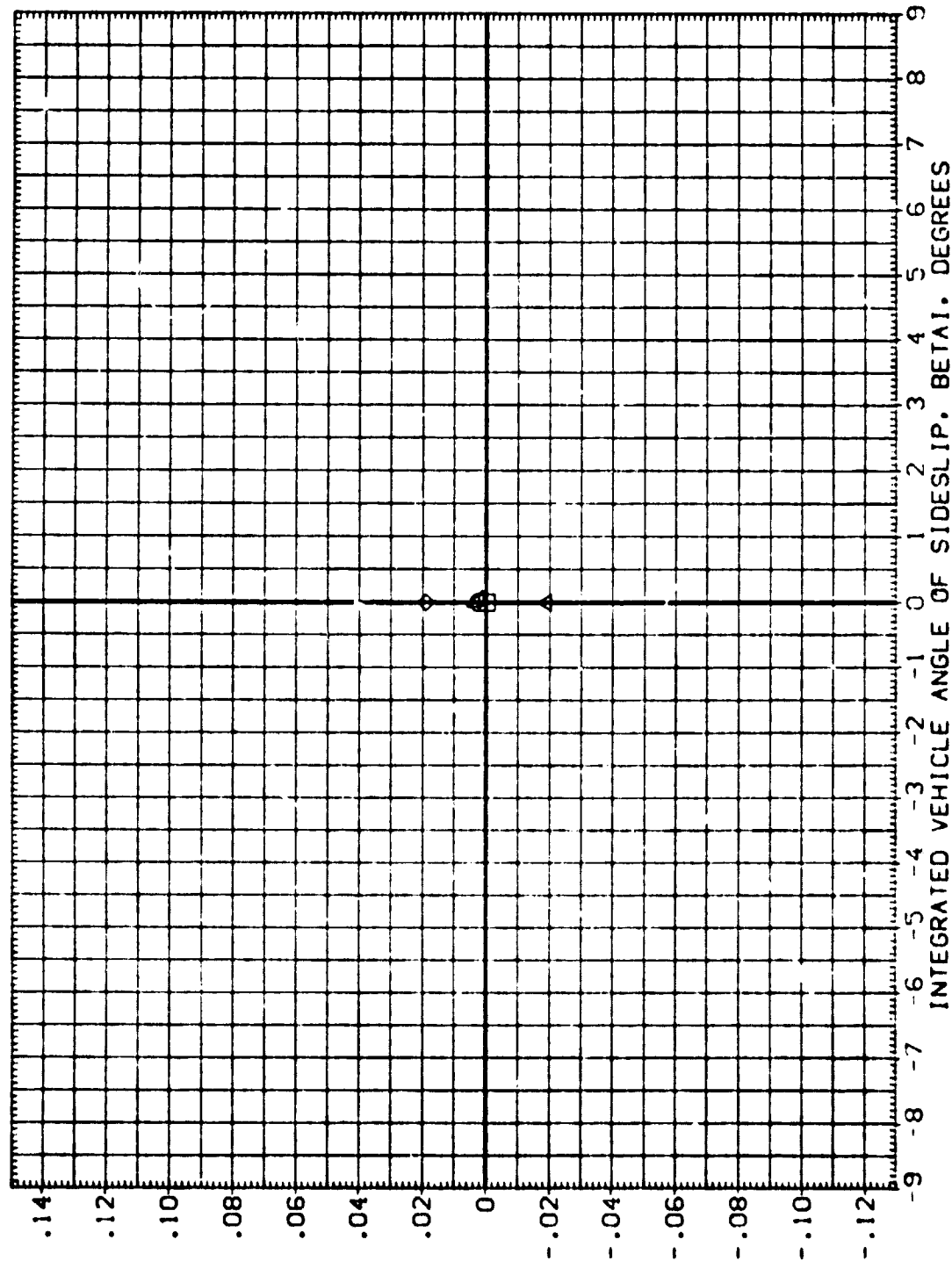


FIG. 22 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=0/0

(A) ALPHA = -6.00

FOREBODY YAWING MOMENT COEFFICIENT, CYNF

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
{LE1040}	AME597-019([AB1]) LVAP CRB1TER-ALL ML SEALED	.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
{LE1140}	AME597-019([AB1]) LVAP YAWM - ALL ML SEALED	.000	.000	2.000	.000	LREF 1297.0000 IN.
{LE1143}	AME597-019([AB1]) LVAP L-SPB - ALL ML SEALED	.000	.000	2.000	.000	BREF 1297.0000 IN.
{LE1R40}	AME597-019([AB1]) LVAP R-SPB - ALL ML SEALED	.000	.000	2.000	.000	XMRP 976.0000 IN. XT
{LE1140}	AME597-019([AB1]) LVAP INT JEM ALL ML SEALED	.000	.000	2.000	.000	YMRP 400.0000 IN. YT
						SCALE .0300

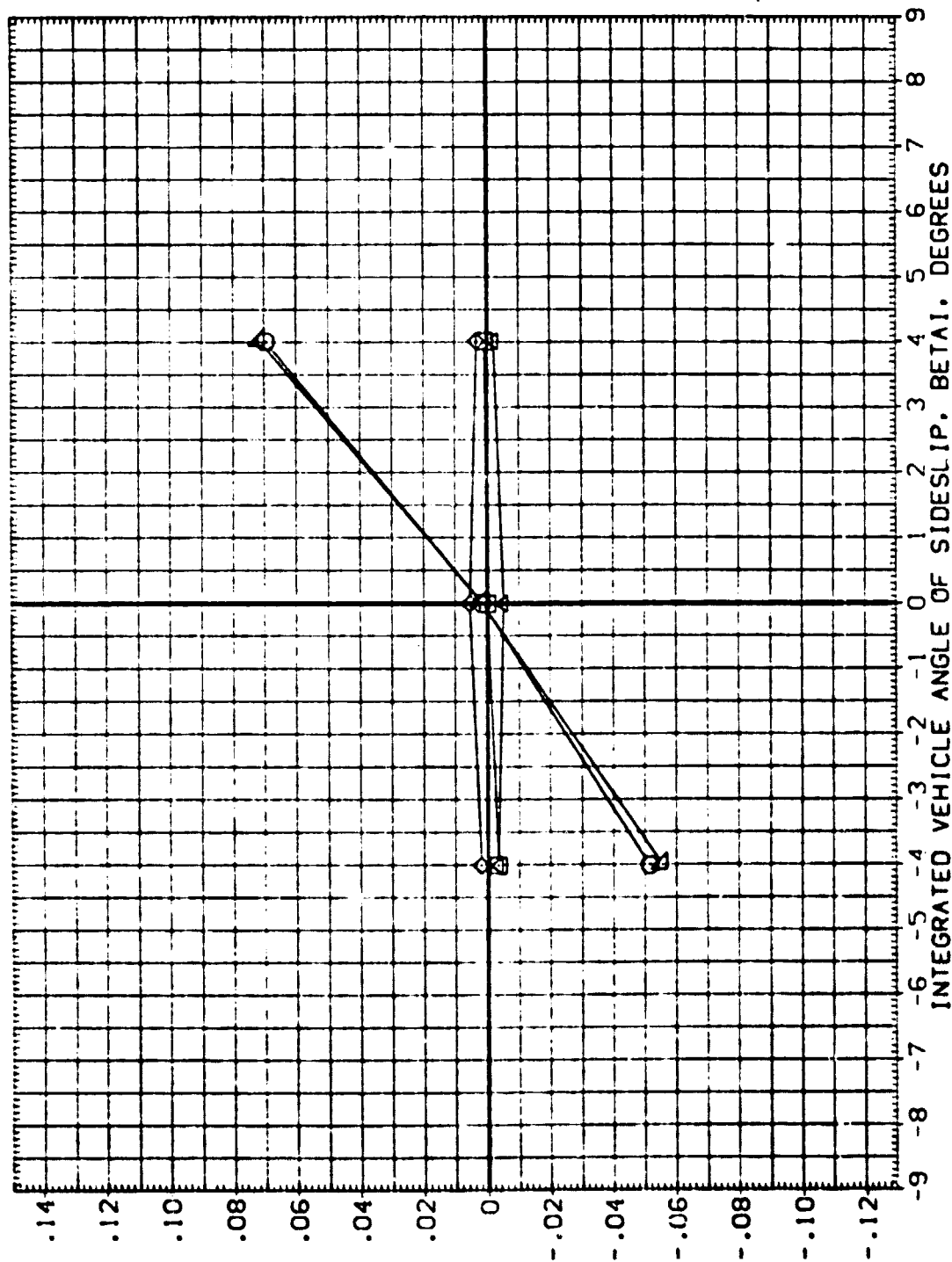


FIG. 22 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=0/0

(B) ALPHA = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(LET040)	AME597-019(1A8) LVAP CRBITTER-ALL ML SEALED	.000	.000	2.000	.000	SREF 2690.0000 SD.FT.
(LET140)	AME597-019(1A8) LVAP TANK - ALL ML SEALED	.000	.000	2.000	.000	LREF 1297.0000 IN.
(LET140)	AME597-019(1A8) LVAP L-SPB - ALL ML SEALED	.000	.000	2.000	.000	BREF 1297.0000 IN.
(LET140)	AME597-019(1A8) LVAP R-SPB - ALL ML SEALED	.000	.000	2.000	.000	XMRP 976.0000 IN.
(LET140)	AME597-019(1A8) LVAP INT VEH ALL ML SEALED	.000	.000	2.000	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

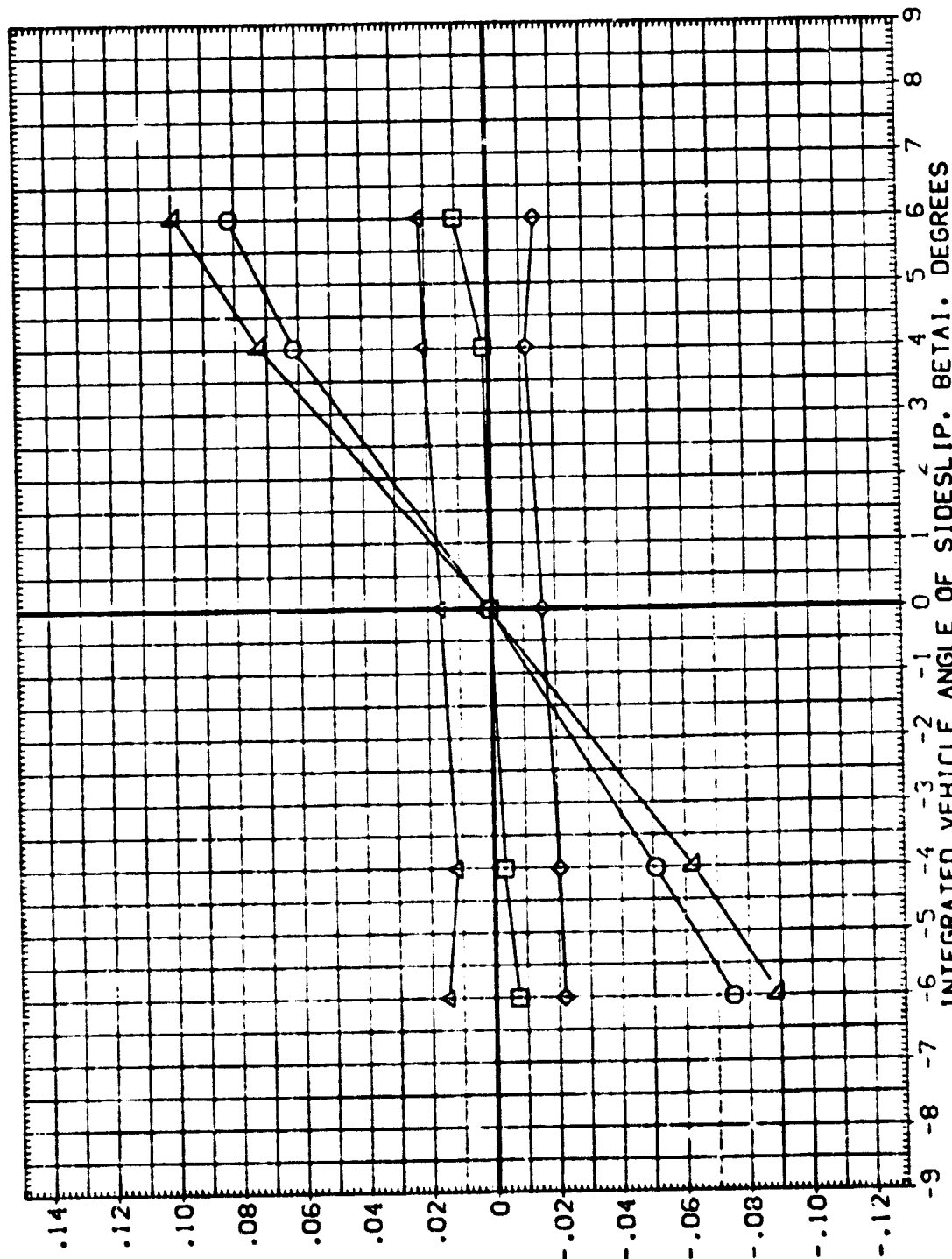


FIG. 22 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=0/0

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LE1040)	AMES97-019(1A11) LVAP ORBITER-ALL ML SEALED	.000	.000	2.000	.000	SREF 2630.0000 SQ.FT.
(LE140)	AMES97-019(1A11) LVAP TANK - ALL ML SEALED	.000	.000	2.000	.000	LREF 1.97.0000 IN.
(LE140)	AMES97-019(1A11) LVAP L-SRB - ALL ML SEALED	.000	.000	2.000	.000	BREF 1.97.0000 IN.
(LE140)	AMES97-019(1A11) LVAP R-LRB - ALL ML SEALED	.000	.000	2.000	.000	XMRP 976.0000 IN.
(LE140)	AMES97-019(1A11) LVAP INT VEN - ALL ML SEALED	.000	.000	2.000	.000	YMRP 400.0000 IN.
(LE140)						ZMRP 400.0000 IN.
						SCALE .0300

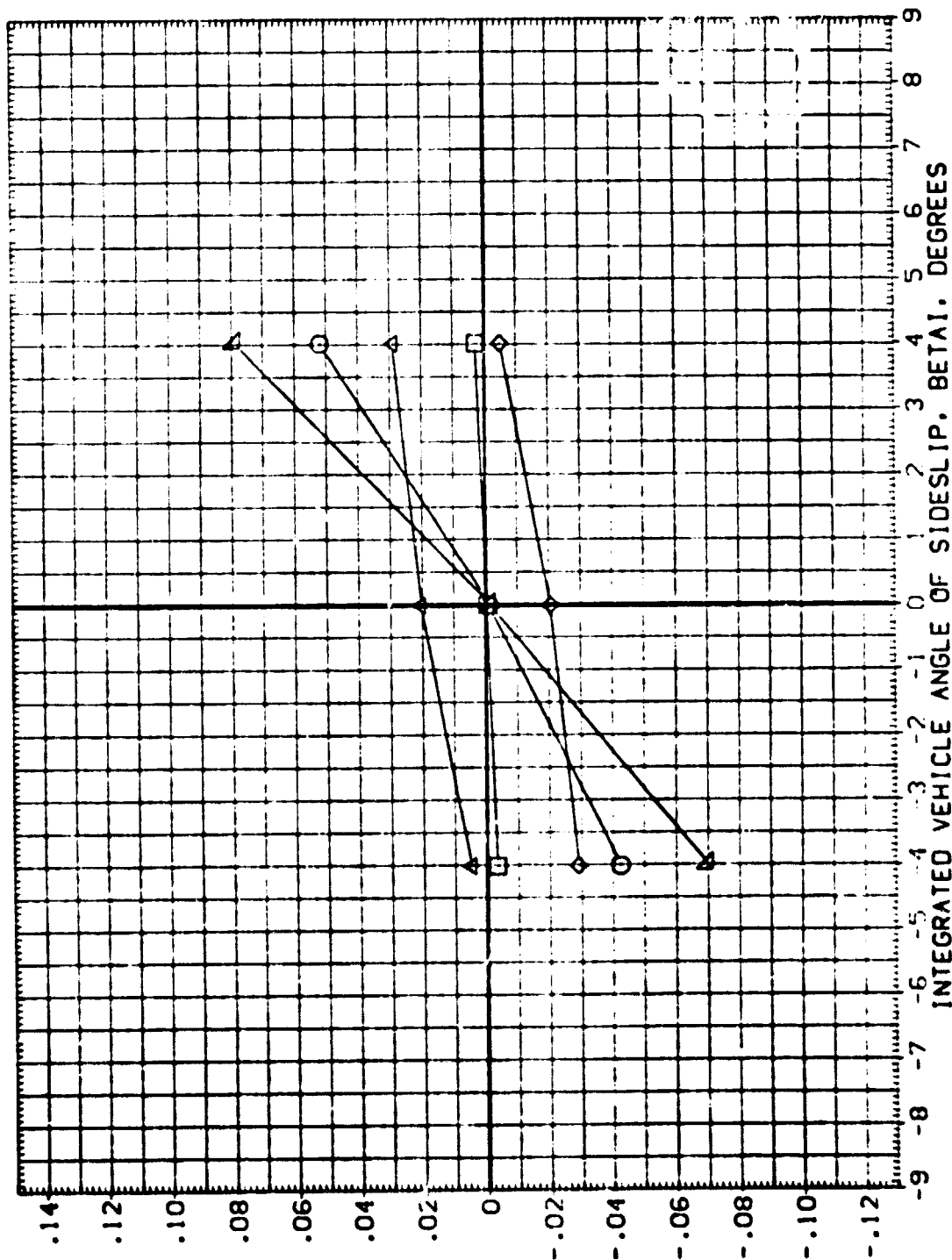


FIG. 22 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=0/0

(D) ALPHA = 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LETR40)	AME597-0191(A81) LVAP QPRTTIP-ALL ML SEALED	.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LETR40)	AME597-0191(A81) LVAP TAP - ALL ML SEALED	.000	.000	2.000	.000	LREF 1297.0000 IN.
(LETR40)	AME597-0191(A81) LVAP L-1RB - ALL ML SEALED	.000	.000	2.000	.000	BREF 1297.0000 IN.
(LETR40)	AME597-0191(A81) LVAP R-1RB - ALL ML SEALED	.000	.000	2.000	.000	YMRP 976.0000 IN.
(LETR40)	AME597-0191(A81) LVAP INT VEM ALL ML SEALED	.000	.000	2.000	.000	YMRP 400.0000 IN.
						SCALE .0300

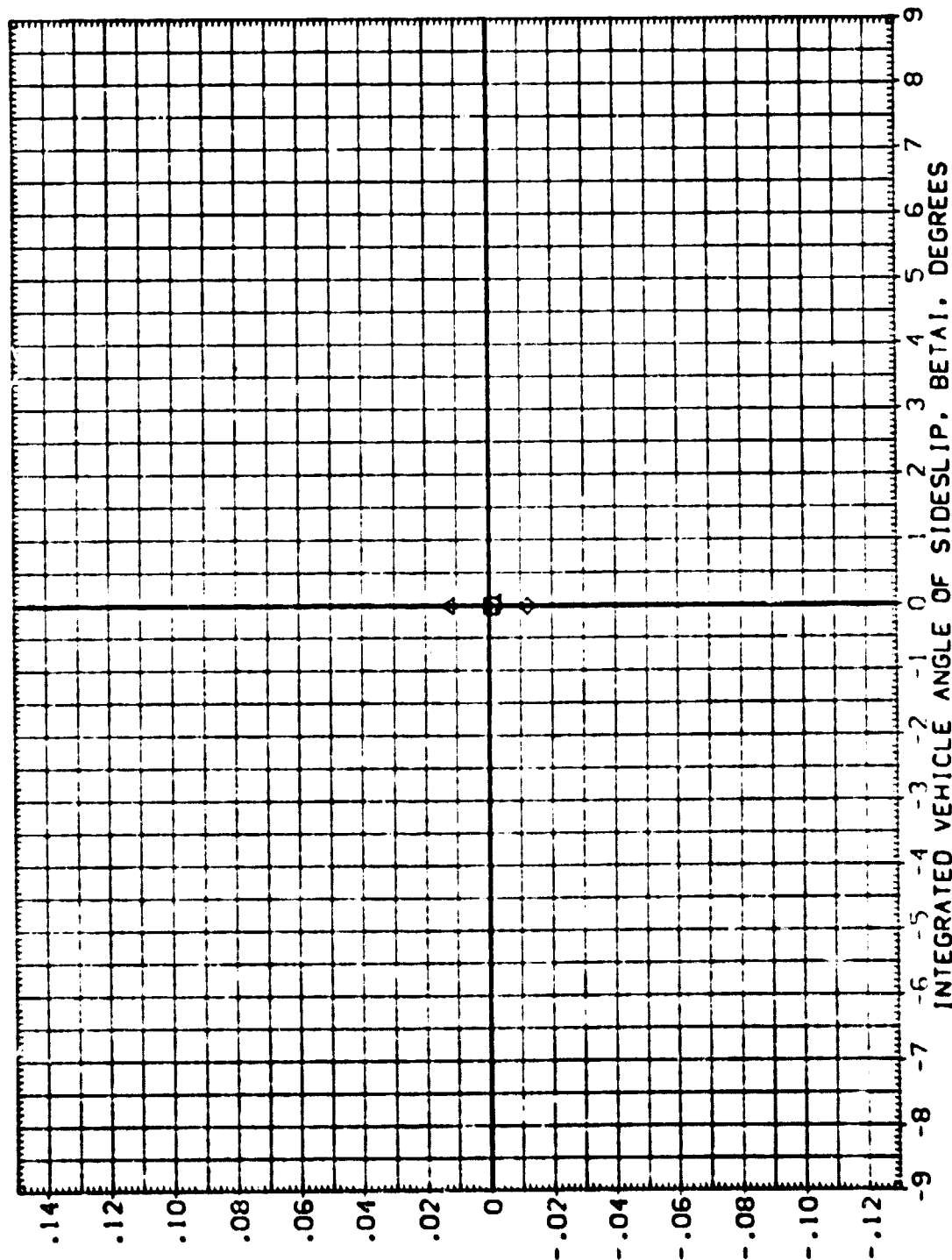


FIG. 22 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=0/0

(E) ALPHA = 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(LETO40)	ARE597-0191(AB) LVAP	.000	.000	2.000	.000	SREF 2590.0000 SO.FT.
(LETT40)	ARE597-0191(AB) LVAP	.000	.000	2.000	.000	REF 1297.0000 IN.
(LETT42)	ARE597-0191(AB) LVAP	.000	.000	2.000	.000	BREF 1297.0000 IN.
(LETT40)	ARE597-0191(AB) LVAP	.000	.000	2.000	.000	YMRP 976.0000 IN. XT
(LETT40)	ARE597-0191(AB) LVAP	.000	.000	2.000	.000	YMRP 400.0000 IN. YT
						SCALE .0300

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

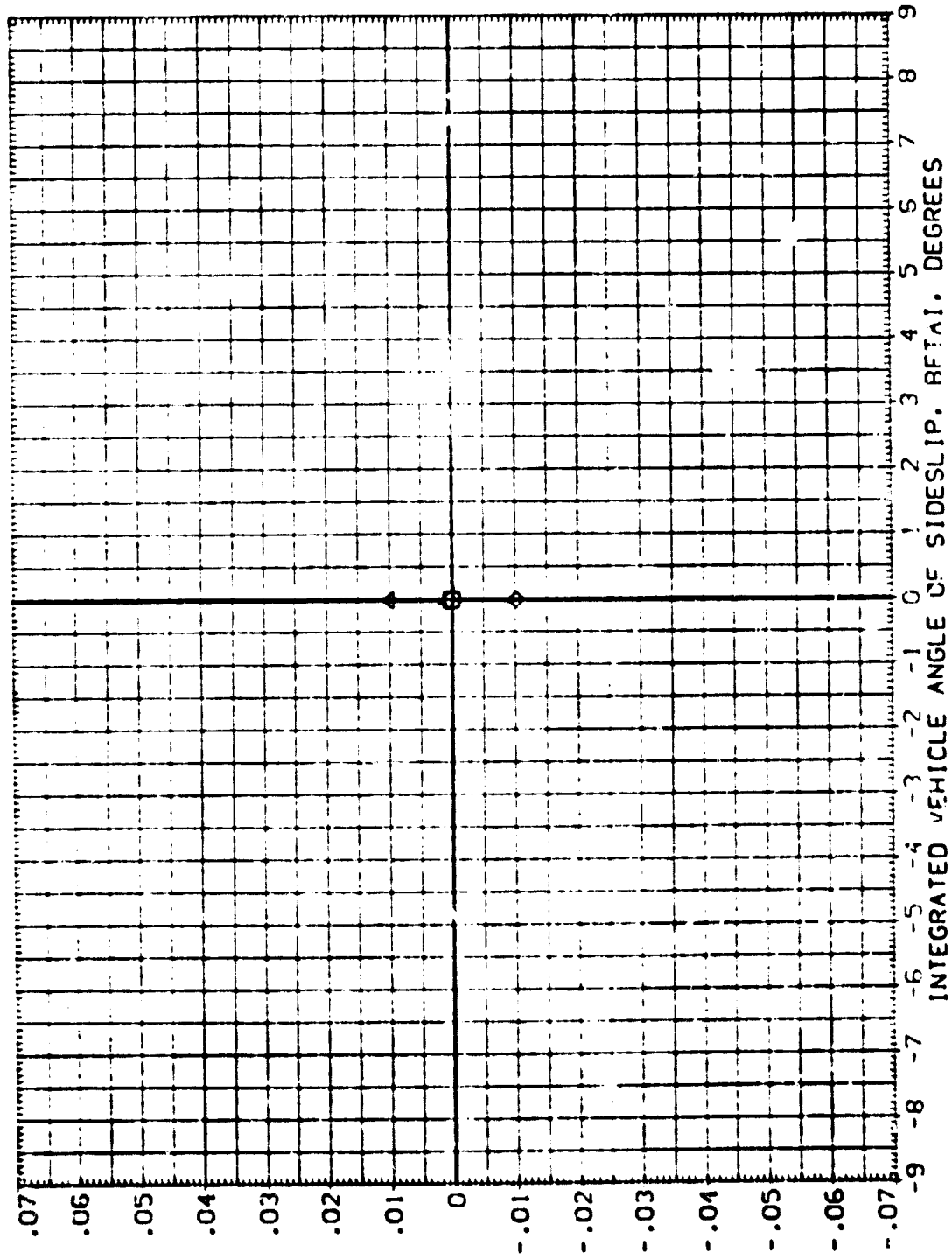
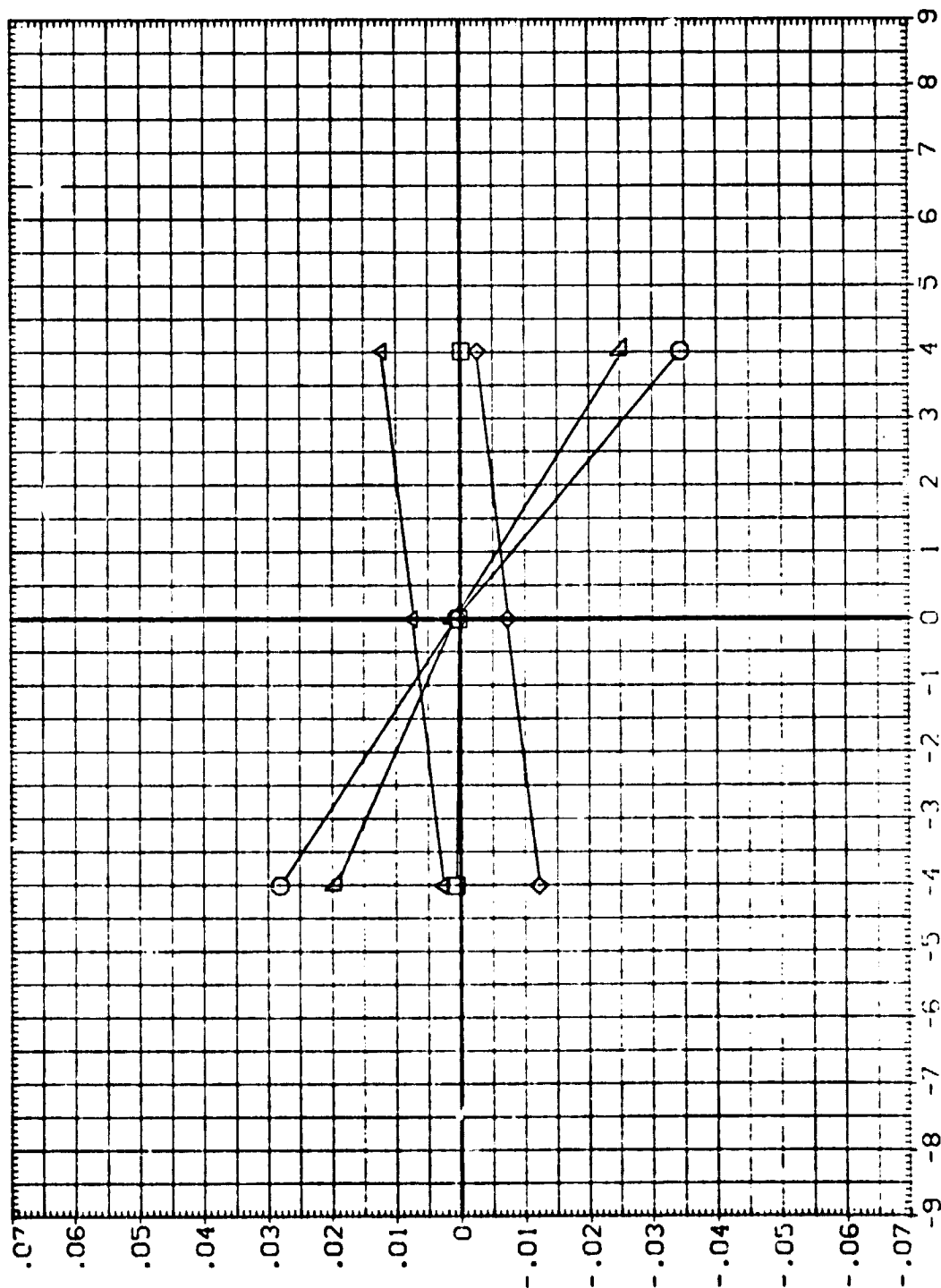


FIG. 22 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=0/0
(A) ALPHA = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LET040)	AME597-019(1A81) LVAP TANK - ALL HL SEALED	.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LET140)	AME597-019(1A81) LVAP TANK - ALL HL SEALED	.000	.000	2.000	.000	LREF 1297.0000 IN.
(LET140)	AME597-019(1A81) LVAP TANK - ALL HL SEALED	.000	.000	2.000	.000	BREF 1297.0000 IN.
(LET140)	AME597-019(1A81) LVAP TANK - ALL HL SEALED	.000	.000	2.000	.000	XMRP 976.0000 IN. XT
(LET140)	AME597-019(1A81) LVAP TANK - ALL HL SEALED	.000	.000	2.000	.000	YMRP 400.0000 IN. YT
(LET140)	AME597-019(1A81) LVAP TANK - ALL HL SEALED	.000	.000	2.000	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300



ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

FIG. 22 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=0/0

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-09	MACH	SPDRBK	REFERENCE INFORMATION
(LE1040)	AME597-019(IAB1) LVAP CRBITTER-ALL HL SEALED	.000	.000	2.000	.000	SREF 2690.0000 SO.FT.
(LE1140)	AME597-019(IAB1) LVAP TAPM - ALL HL SEALED	.000	.000	2.000	.000	LREF 1297.0000 IN.
(LE1L40)	AME597-019(IAB1) LVAP L-SRU - ALL HL SEALED	.000	.000	2.000	.000	BREF 1297.0000 IN.
(LE1R40)	AME597-019(IAB1) LVAP R-LRB - ALL HL SEALED	.000	.000	2.000	.000	YMRP 976.0000 IN.
(LE1140)	AME597-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.000	.000	ZMRP 400.0000 IN.
						SCALE .0300

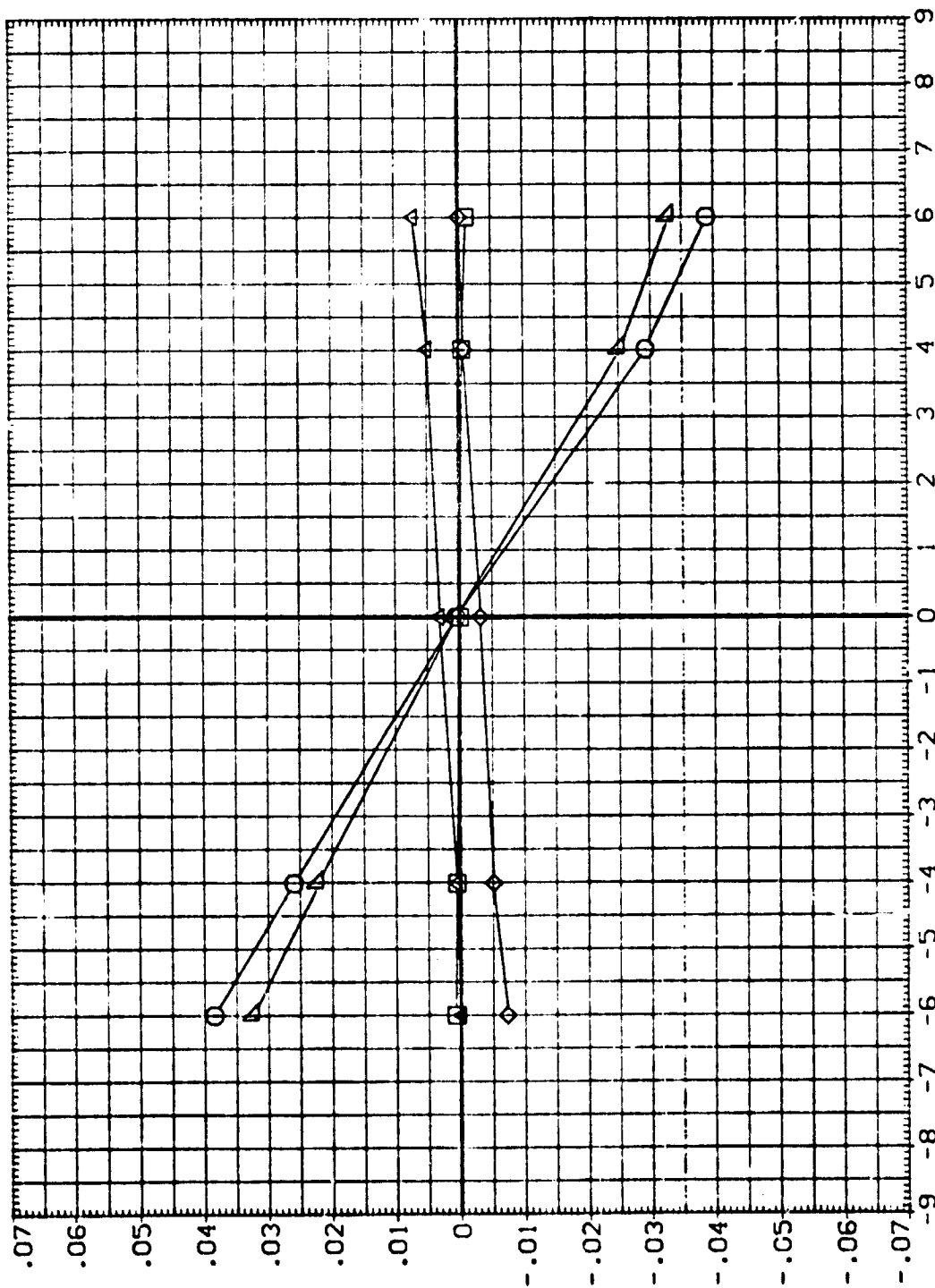


FIG. 22 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=0/0
(C)ALPHA1= .00 PAGE 510

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPOBRK	REFERENCE INFORMATION
(LETO40)	AMES97-019(1A81) LVAP	.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LETT40)	AMES97-019(1A81) LVAP	.000	.000	2.000	.000	LREF 1297.0000 IN.
(LETL40)	AMES97-019(1A81) LVAP	.000	.000	2.000	.000	BREF 1297.0000 IN.
(LETR40)	AMES97-019(1A81) LVAP	.000	.000	2.000	.000	XMRP 576.0000 IN. XT
(LETT40)	AMES97-019(1A81) LVAP	.000	.000	2.000	.000	YMRP 400.0000 IN. YT
(LETT40)	AMES97-019(1A81) LVAP	.000	.000	2.000	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

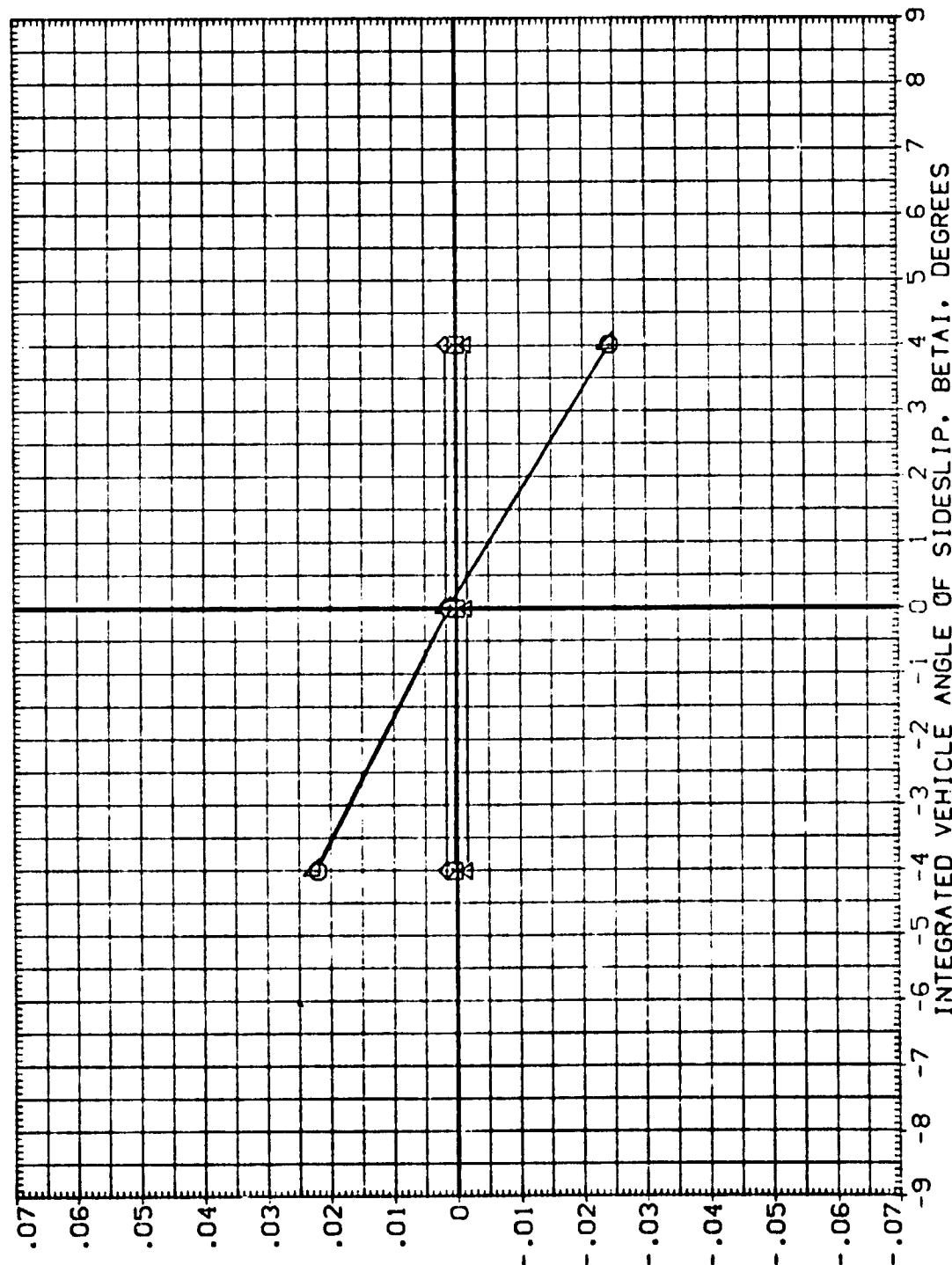


FIG. 22 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=0/0

(D)ALPHA= 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LET040)	AME597-019(1A81) LVAP ORBITER-ALL HL SEALED	.000	.000	2.000	.000	SRE 2690.0000 SQ.FT.
(LET140)	AME597-019(1A81) LVAP TANK - ALL HL SEALED	.000	.000	2.000	.000	LREF 1297.0000 IN.
(LET140)	AME597-019(1A81) LVAP L-SRB - ALL HL SEALED	.000	.000	2.000	.000	BREF 1297.0000 IN.
(LET140)	AME597-019(1A81) LVAP R-SRB - ALL HL SEALED	.000	.000	2.000	.000	XMRP 976.0000 IN.
(LET140)	AME597-019(1A81) LVAP INT VEH ALL HL SEALED	.000	.000	2.000	.000	YMRP .0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

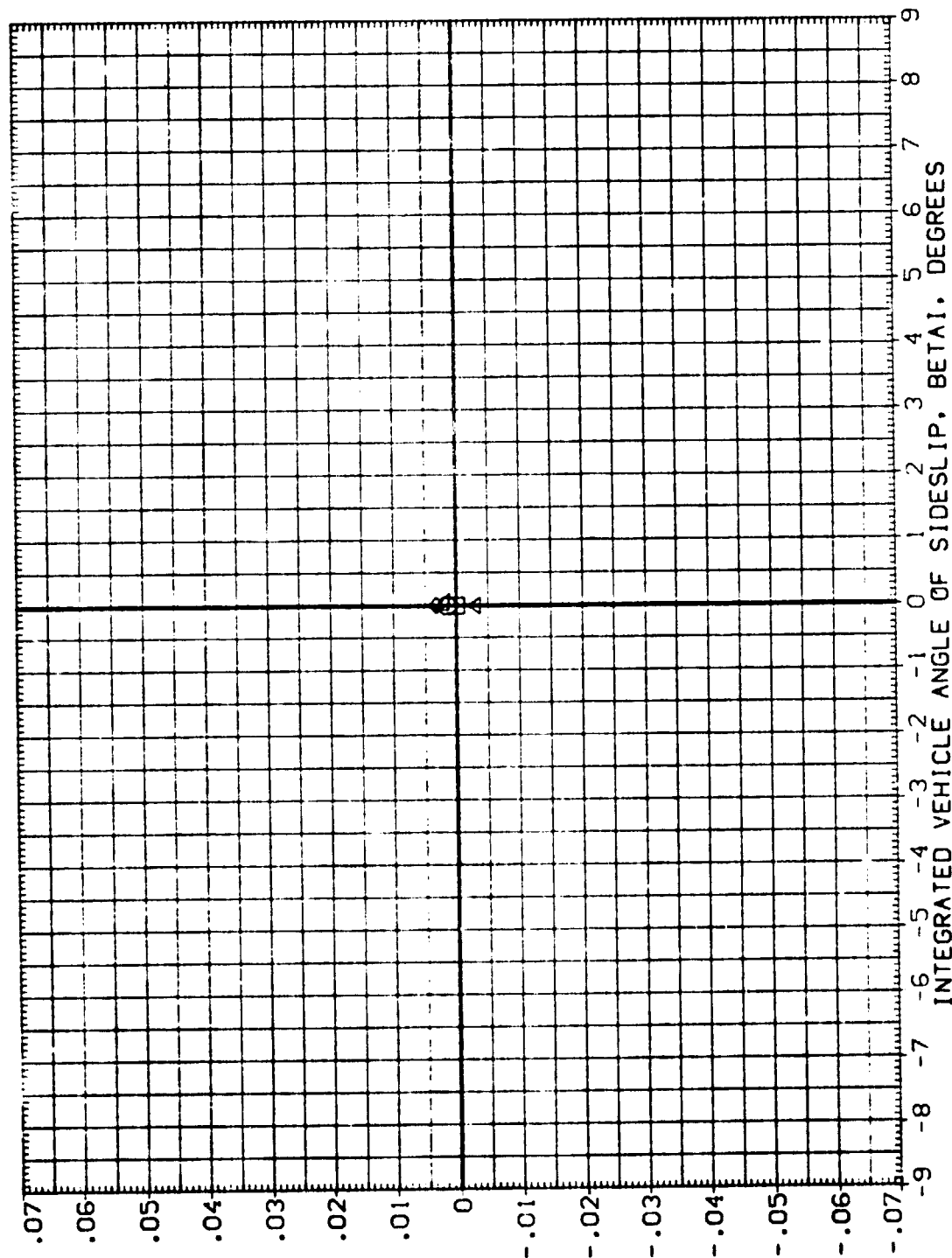


FIG. 22 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=0/C

(E)ALPHA= 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(LETR40)	AMES97-0191(TAB1) LVAP ORBITER-ALL HL SEALED	.000	.000	2.000	.000	SREF 2690.0000 SD.FT.
(LETT40)	AMES97-0191(TAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.000	.000	LREF 1297.0000 IN.
(LETL40)	AMES97-0191(TAB1) LVAP L-CRB - ALL HL SEALED	.000	.000	2.000	.000	BREF 1297.0000 IN. XT
(LETR40)	AMES97-0191(TAB1) LVAP P-LRB - ALL HL SEALED	.000	.000	2.000	.000	XMRP 976.0000 IN. YT
(LETT40)	AMES97-0191(TAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.000	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

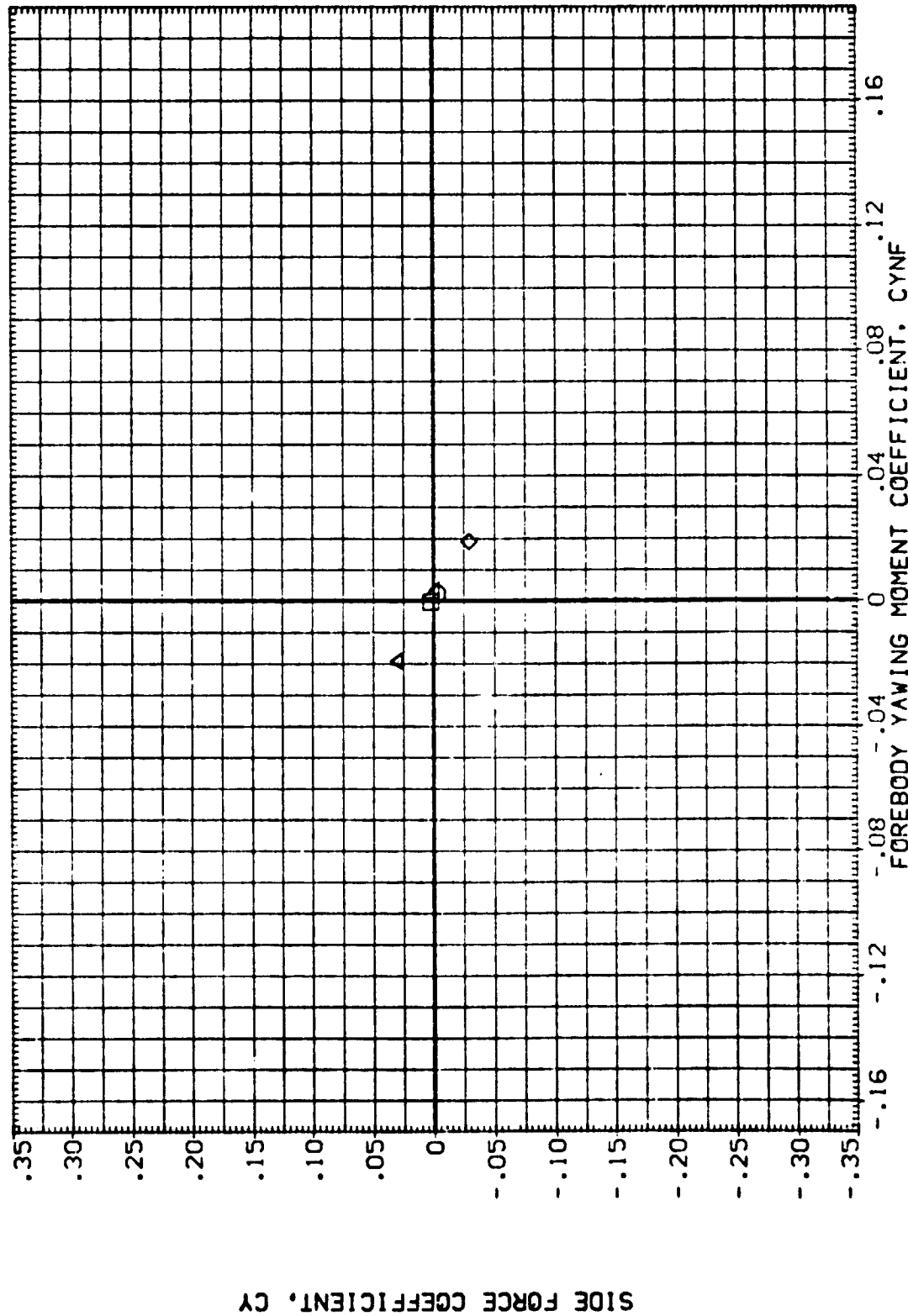


FIG. 22 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=2.0$ $DEV=0/0$

(A) $\alpha_{PIA1} = -6.00$

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SP09RK	REFERENCE INFORMATION
(LETO40)	AMES97-019(1A81) LVAP ORBITER-ALL HL SEALED	.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LETT40)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	.000	.000	2.000	.000	LREF 1297.0000 IN.
(LETL40)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	.000	.000	2.000	.000	BREF 1297.0000 IN.
(LETR40)	AMES97-019(1A81) LVAP R-SRB - ALL HL SEALED	.000	.000	2.000	.000	XMRP 976.0000 IN.
(LETT40)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	.000	.000	2.000	.000	YMRP 400.0000 IN.
(LETT40)						ZMRP 400.0000 IN.
						SCALE .0300

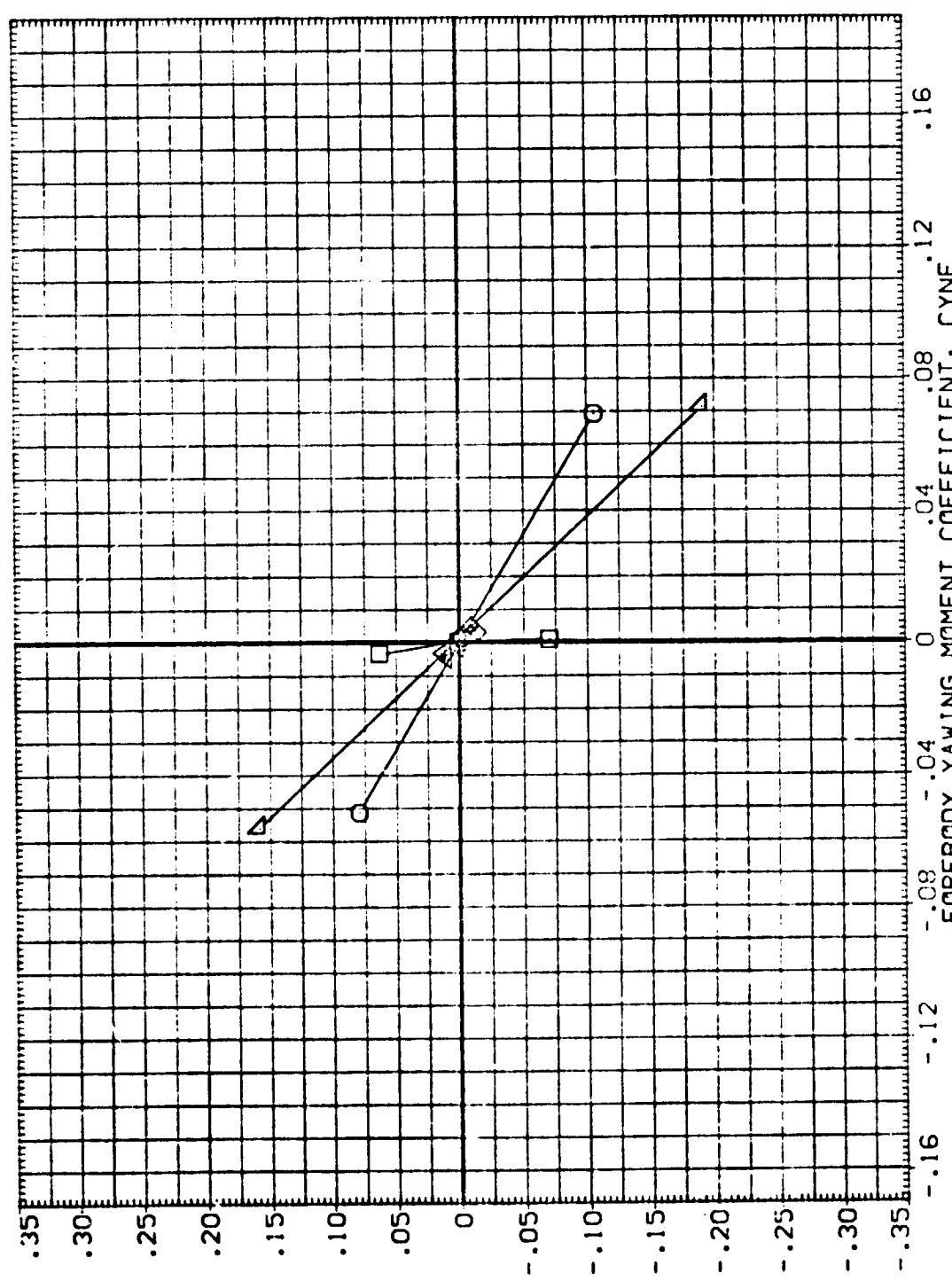


FIG. 22 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=0/0
 (B) ALPHA = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDRK	REFERENCE INFORMATION
(LET040)	AME597-019(IAB1) LVAP ORBITTER-ALL HL SEALED	.000	.000	2.000	.000	SREF 2690.0000 SO.FT.
(LET140)	AME597-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.000	.000	LREF 1297.0000 IN.
(LET140)	AME597-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.000	.000	BREF 1297.0000 IN.
(LET140)	AME597-019(IAB1) LVAP R-LRB - ALL HL SEALED	.000	.000	2.000	.000	XHRP 976.0000 IN.
(LET140)	AME597-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.000	.000	YHRP 400.0000 IN.
(LET140)						ZHRP 400.0000 IN.
						SCALE .0300

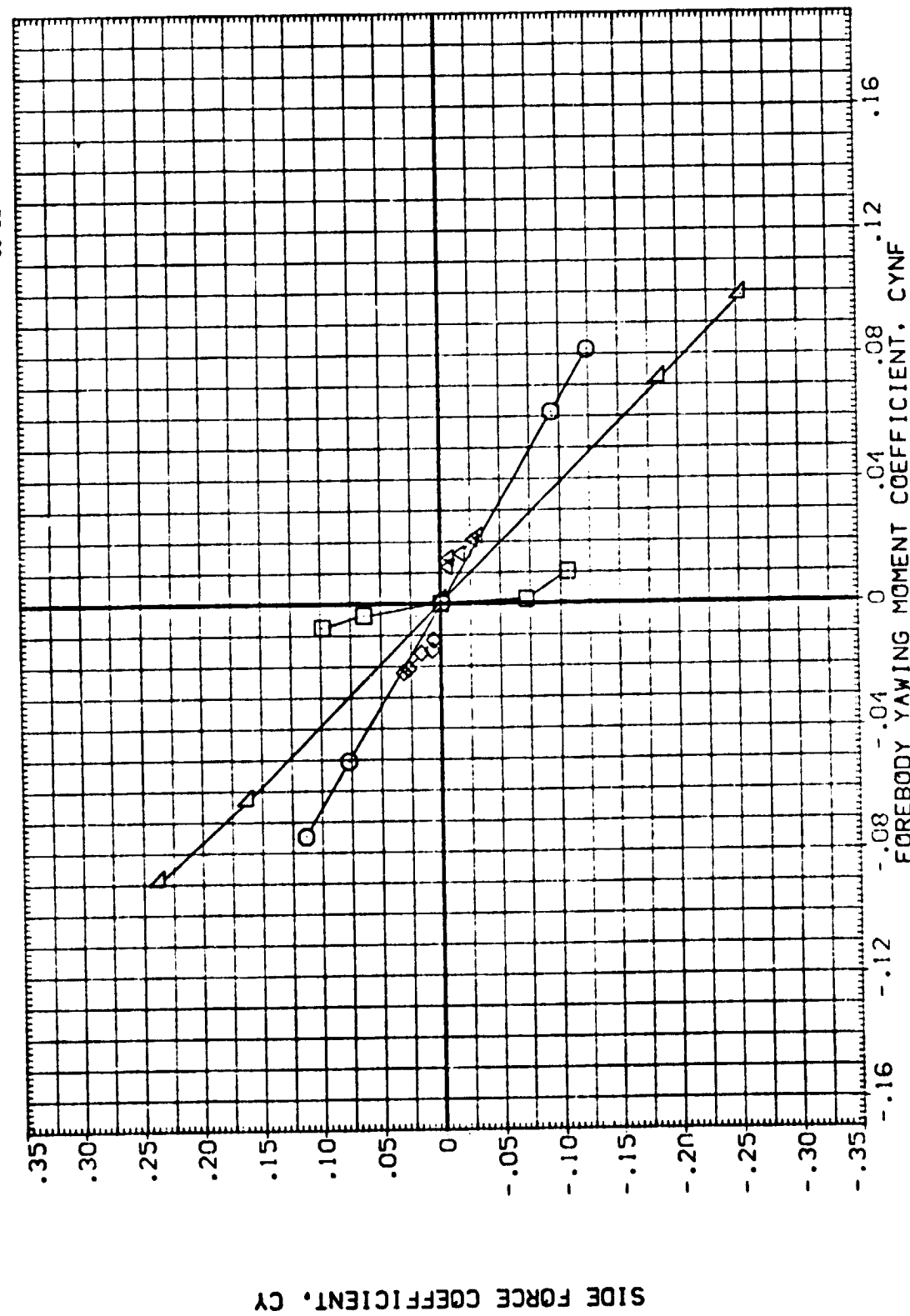


FIG. 22 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=0/0

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-CB	MACH	SPDRK	REFERENCE INFORMATION
(LETO40)	AME597-019(IAB1) LVAP ORBITTER-ALL HL SEALED	.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LEIT40)	AME597-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.000	.000	LREF 1297.0000 IN.
(LEIT40)	AME597-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.000	.000	BREF 1297.0000 IN.
(LEIT40)	AME597-019(IAB1) LVAP R-LRB ALL HL SEALED	.000	.000	2.000	.000	XMRP 976.0000 IN.
(LEIT40)	AME597-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.000	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

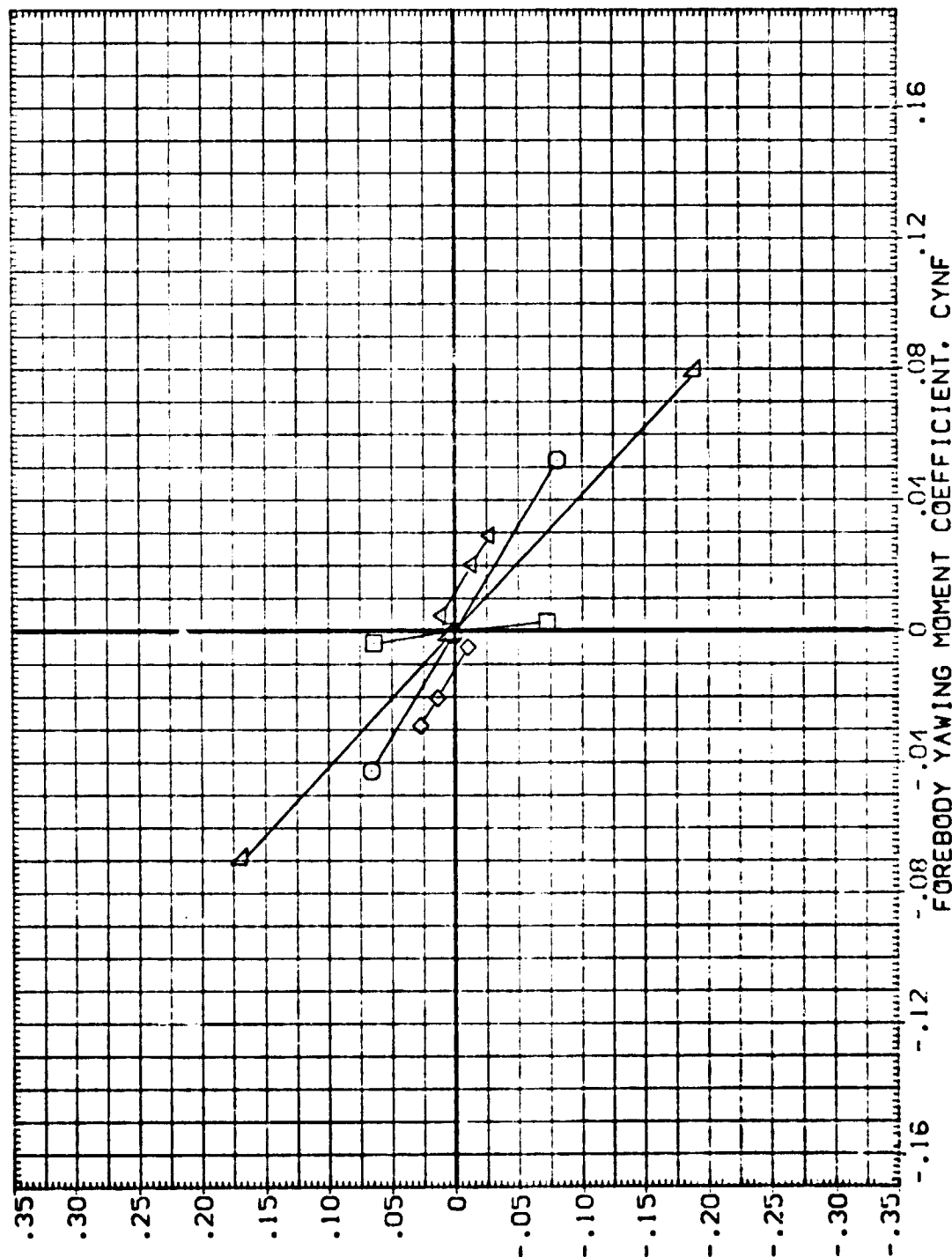


FIG. 22 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=0/0

(D)ALPHA= 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-B	ELV-OB	MACH	SPDRK	REFERENCE INFORMATION
(LE1040)	AMES97-019(IAB1) LVAP	.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LE1140)	AMES97-019(IAB1) LVAP	.000	.000	2.000	.000	LREF 1297.0000 IN.
(LE1L40)	AMES97-019(IAB1) LVAP	.000	.000	2.000	.000	BREF 1297.0000 IN. XT
(LE1R40)	AMES97-019(IAB1) LVAP	.000	.000	2.000	.000	YMRP 976.0000 IN. YT
(LE1I40)	AMES97-019(IAB1) LVAP	.000	.000	2.000	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

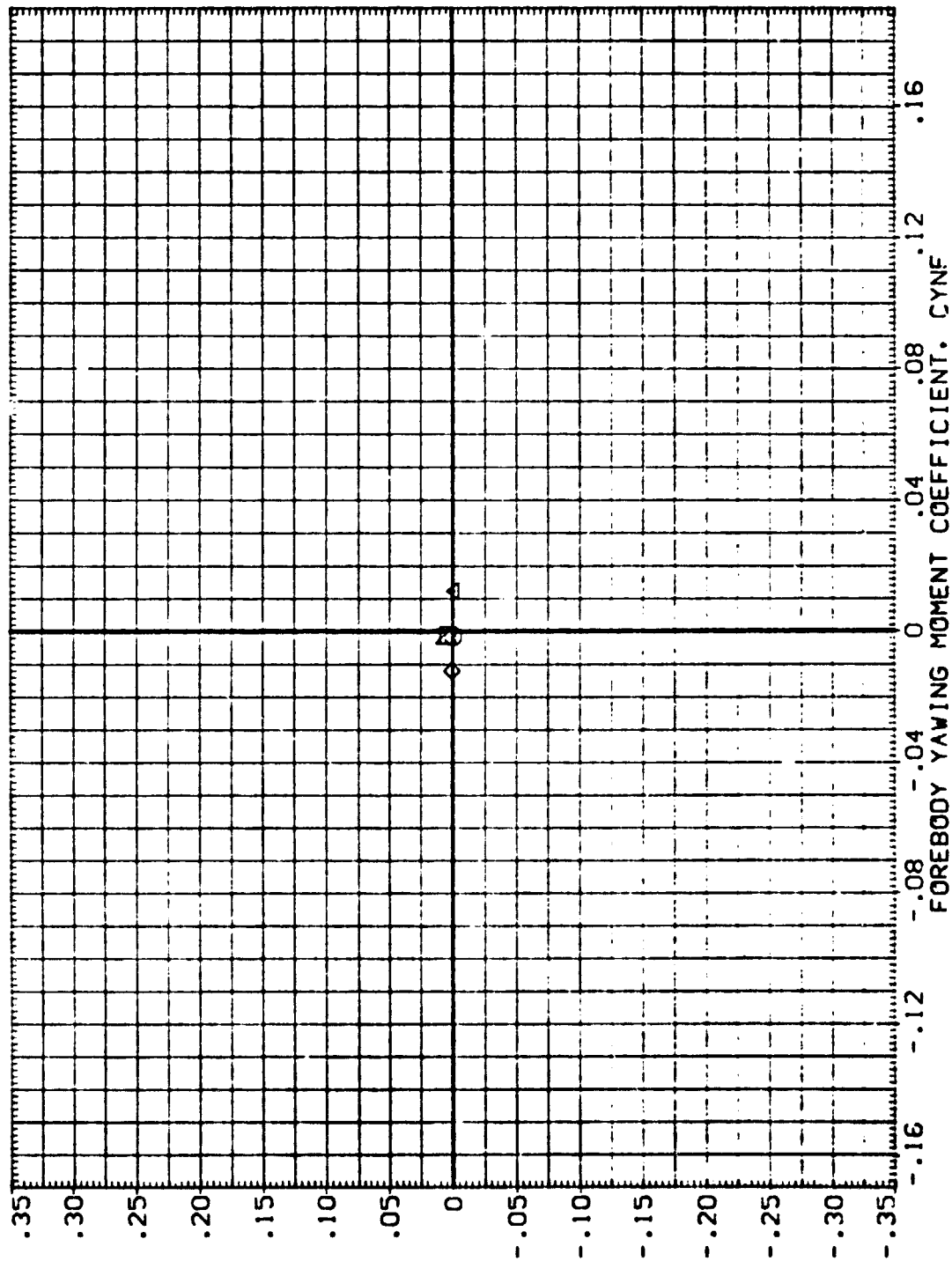


FIG. 22 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS. M=2.0 DEV=0/0
(E) ALPHA= 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(LE1040)	AME597-019(IAB1) LVAP ORBITTER-ALL ML SEALED	.000	.000	2.000	.000	SREF 2690.0000 SO.FT.
(LE1140)	AME597-019(IAB1) LVAP TANK - ALL ML SEALED	.000	.000	2.000	.000	LREF 1297.0000 IN.
(LE1L40)	AME597-019(IAB1) LVAP L-SRB - ALL ML SEALED	.000	.000	2.000	.000	BREF 1297.0000 IN. XT
(LE1R40)	AME597-019(IAB1) LVAP R-LRB - ALL ML SEALED	.000	.000	2.000	.000	YMRP .0000 IN. YT
(LE1140)	AME597-019(IAB1) LVAP INT VEH ALL ML SEALED	.000	.000	2.000	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

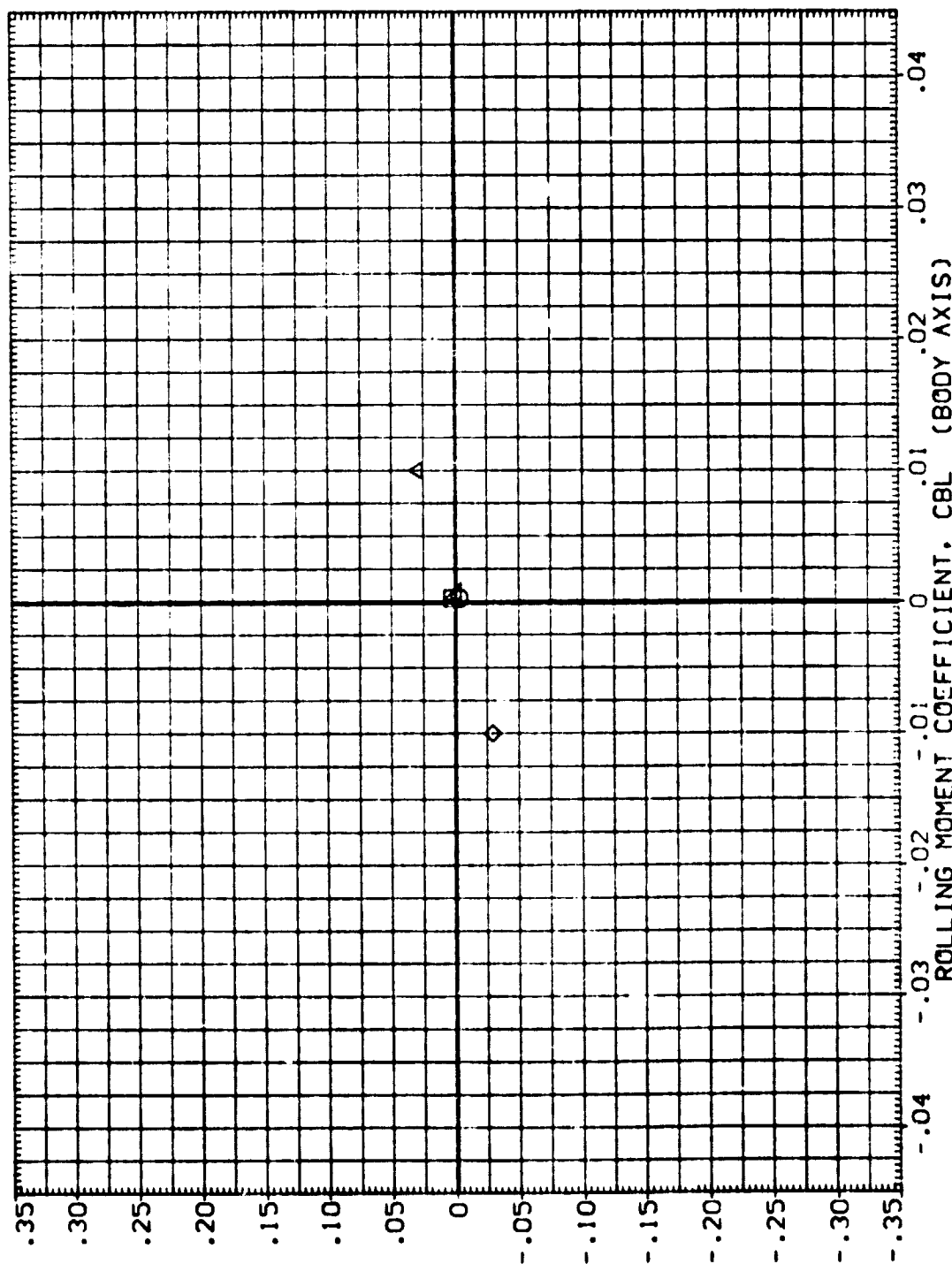


FIG. 22 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=0/0
(A) ALPHA= -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-OB	MACH	SPDBRK	REFERENCE INFORMATION
(LET040)	AMES97-019(IAB1) LVAP CRBITER-ALL HL SEALED	.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LET140)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.000	.000	LREF 1297.0000 IN.
(LET140)	AMES97-019(IAB1) LVAP L-SMB - ALL HL SEALED	.000	.000	2.000	.000	BREF 1297.0000 IN.
(LET140)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	.000	.000	2.000	.000	XMRP 976.0000 IN. XT
(LET140)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.000	.000	YMRP 400.0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

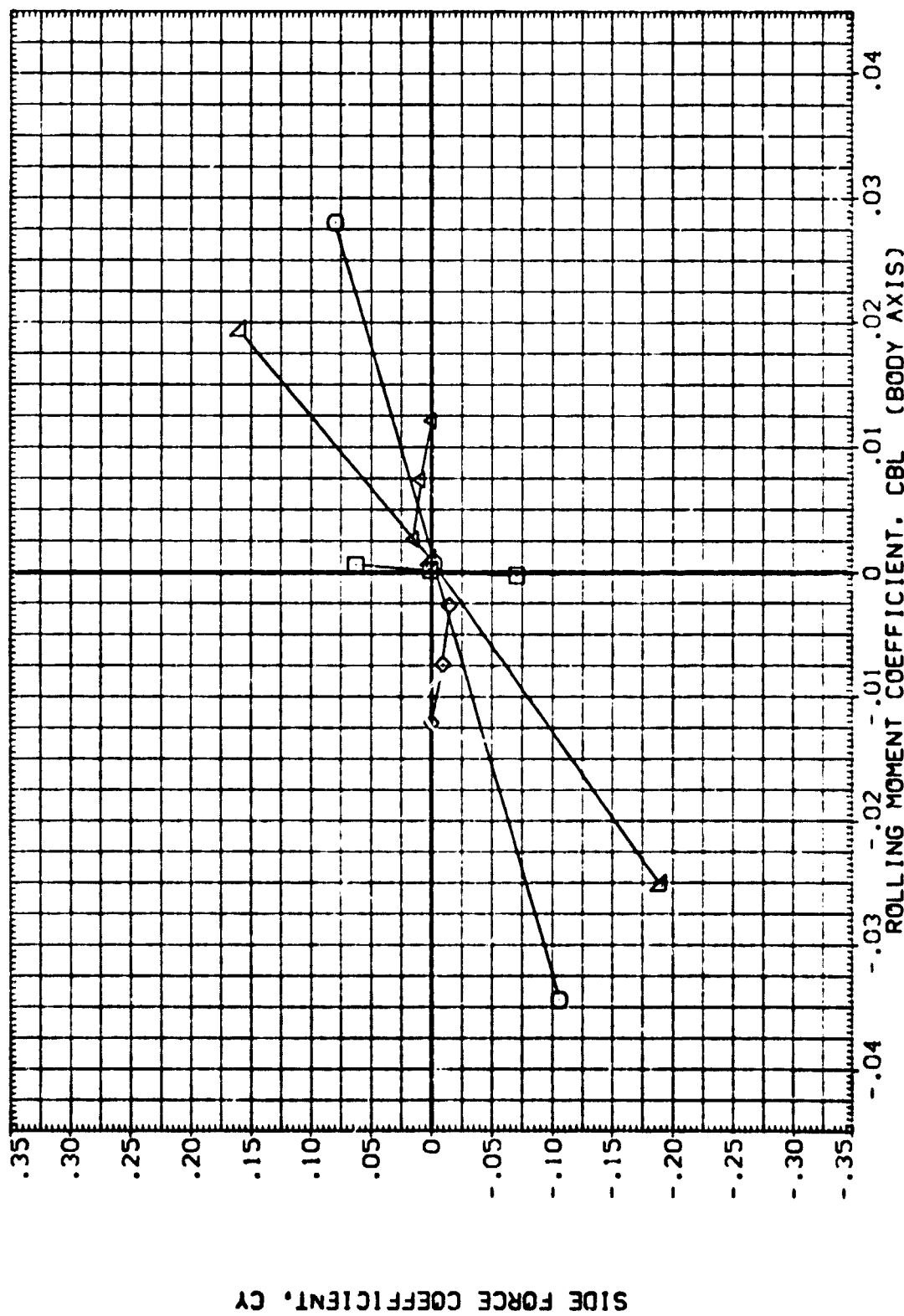


FIG. 22 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=0/0
(B) ALPHA = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRBK	REFERENCE INFORMATION
(LETO40)	AMES97-019C(1A1) LVAP ORBITER-ALL ML SEALED	.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LETT40)	AMES97-019C(1A1) LVAP TANK - ALL ML SEALED	.000	.000	2.000	.000	LREF 1297.0000 IN.
(LETL40)	AMES97-019C(1A1) LVAP L-SRB - ALL ML SEALED	.000	.000	2.000	.000	BREF 1297.0000 IN.
(LETR40)	AMES97-019C(1A1) LVAP R-LRB - ALL ML SEALED	.000	.000	2.000	.000	XMRP 976.0000 IN.
(LETT40)	AMES97-019C(1A1) LVAP INT VEH ALL ML SEALED	.000	.000	2.000	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

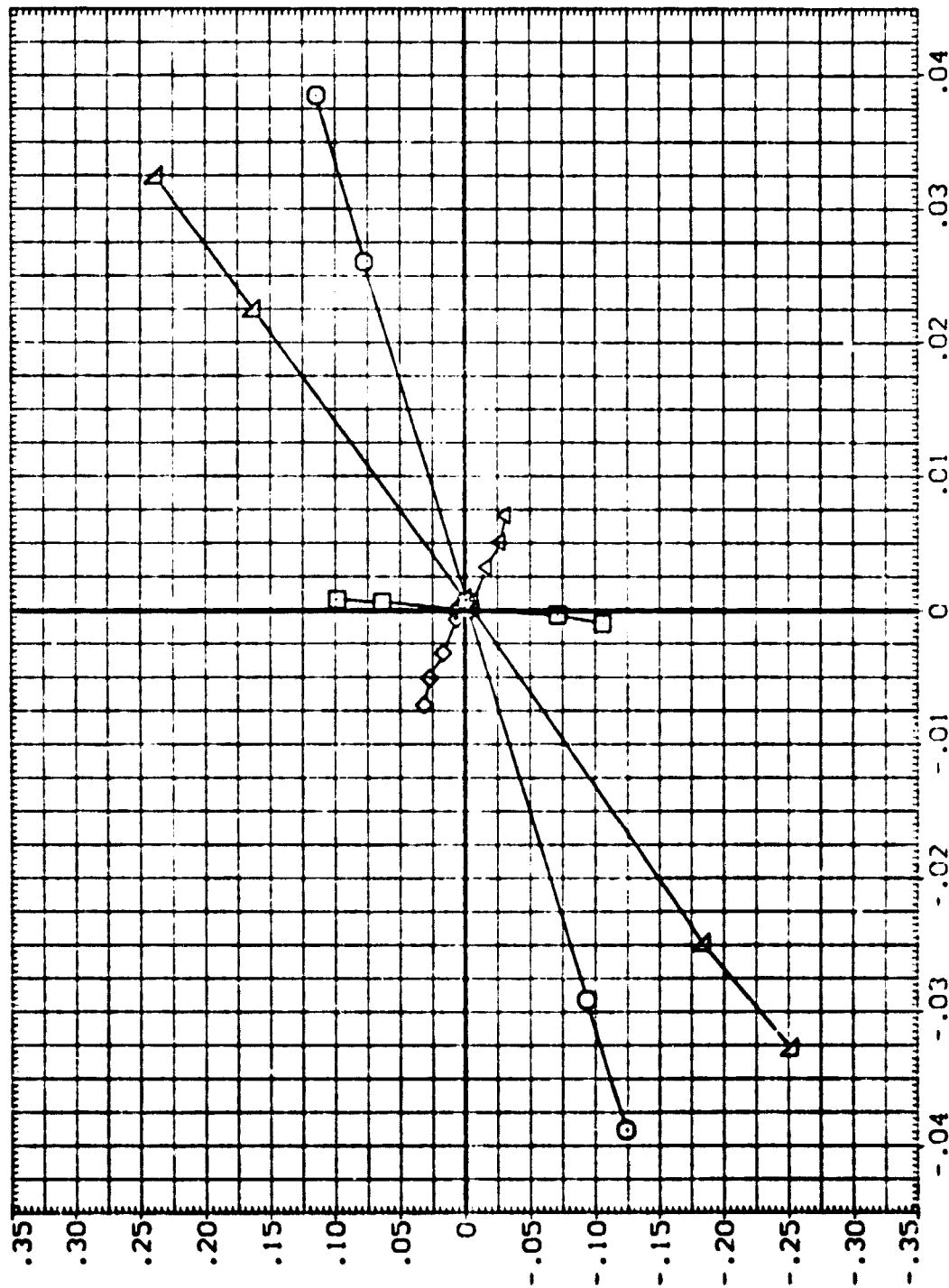


FIG. 22 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=0/0

(C)ALPHA= .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LET040)	AMES97-019(1A81) LVAP	.000	.000	2.000	.000	SREF 2690.0000 SO.FT.
(LET140)	AMES97-019(1A81) LVAP	.000	.000	2.000	.000	LREF 1297.0000 IN.
(LET140)	AMES97-019(1A81) LVAP	.000	.000	2.000	.000	BREF 1297.0000 IN.
(LET140)	AMES97-019(1A81) LVAP	.000	.000	2.000	.000	XMRP 976.0000 IN.
(LET140)	AMES97-019(1A81) LVAP	.000	.000	2.000	.000	ZMRP 400.0000 IN.
(LET140)	AMES97-019(1A81) LVAP	.000	.000	2.000	.000	SCALE .0300

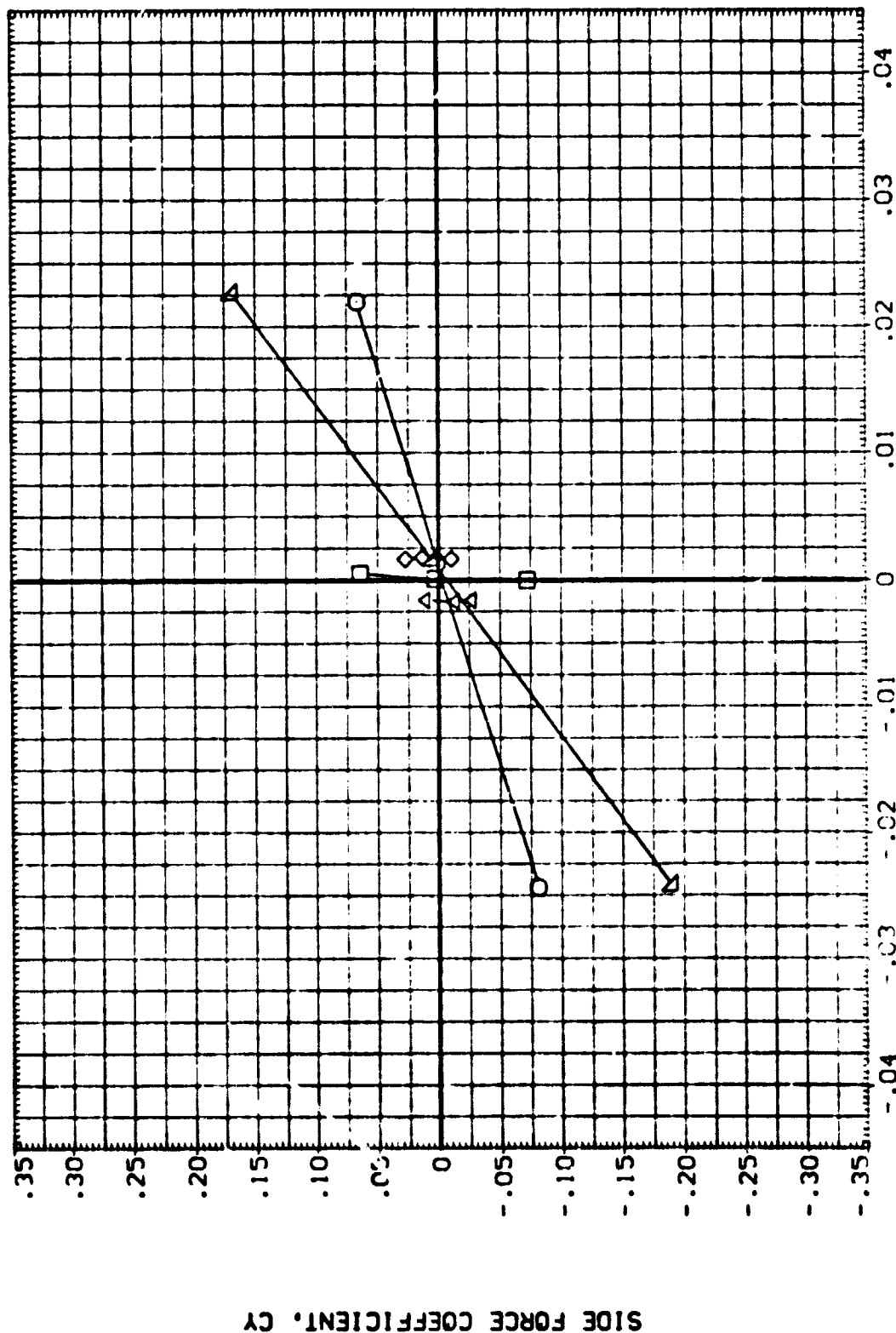


FIG. 22 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=0/0
 (D) ALPHA = 4.00
 PAGE 521

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-CB	HACH	SPDBRK	REFERENCE INFORMATION
(LETT40)	AVES97-019(IAB1) LVAP ORBITER-ALL ML SEALED	.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LETT40)	AVES97-019(IAB1) LVAP TANK - ALL ML SEALED	.000	.000	2.000	.000	LREF 1297.0000 IN.
(LETT40)	AVES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	.000	.000	2.000	.000	BREF 1297.0000 IN.
(LETT40)	AVES97-019(IAB1) LVAP R-LRB - ALL ML SEALED	.000	.000	2.000	.000	XPAP 976.0000 IN. XT
(LETT40)	AVES97-019(IAB1) LVAP INT VEN ALL ML SEALED	.000	.000	2.000	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

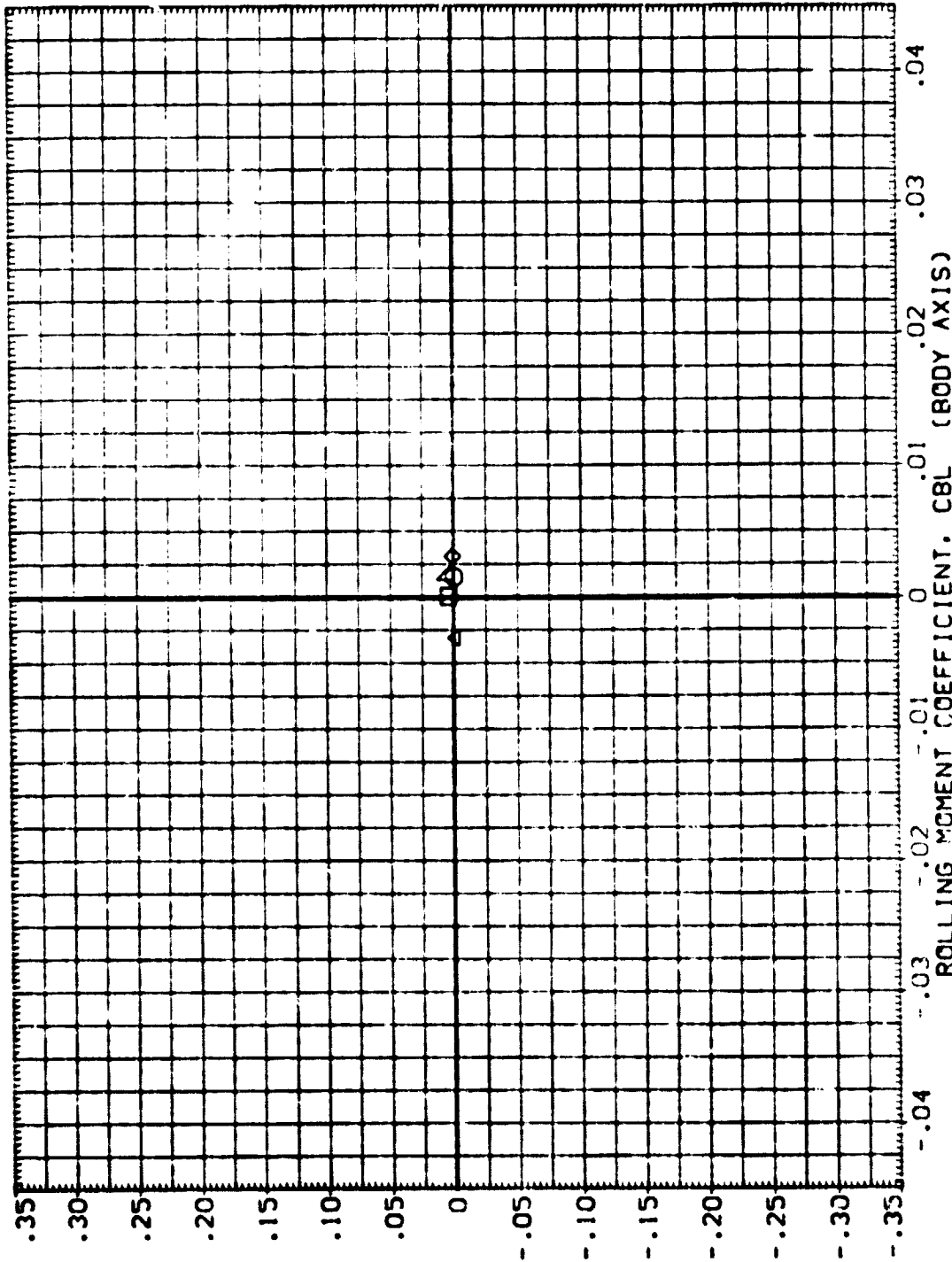


FIG. 22 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=0/0
(E)ALPHA= 6.00 PAGE 522

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-2B	MACH	SPOBRK	REFERENCE INFORMATION
(LET044)	AMES97-019(1A81) LVAP ORBITTER-ALL HL SEALED	8.000	.000	2.000	.000	SREF 2690.0000
(LET144)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	.000	2.000	.000	LREF 1297.0000
(LET244)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.000	.000	BREF 1297.0000
(LET344)	AMES97-019(1A81) LVAP R-LRB ALL HL SEALED	8.000	.000	2.000	.000	XMRP 976.0000
(LET444)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	.000	2.000	.000	YMRP 400.0000
(LET544)						ZMRP 400.0000
						SCALE .0300

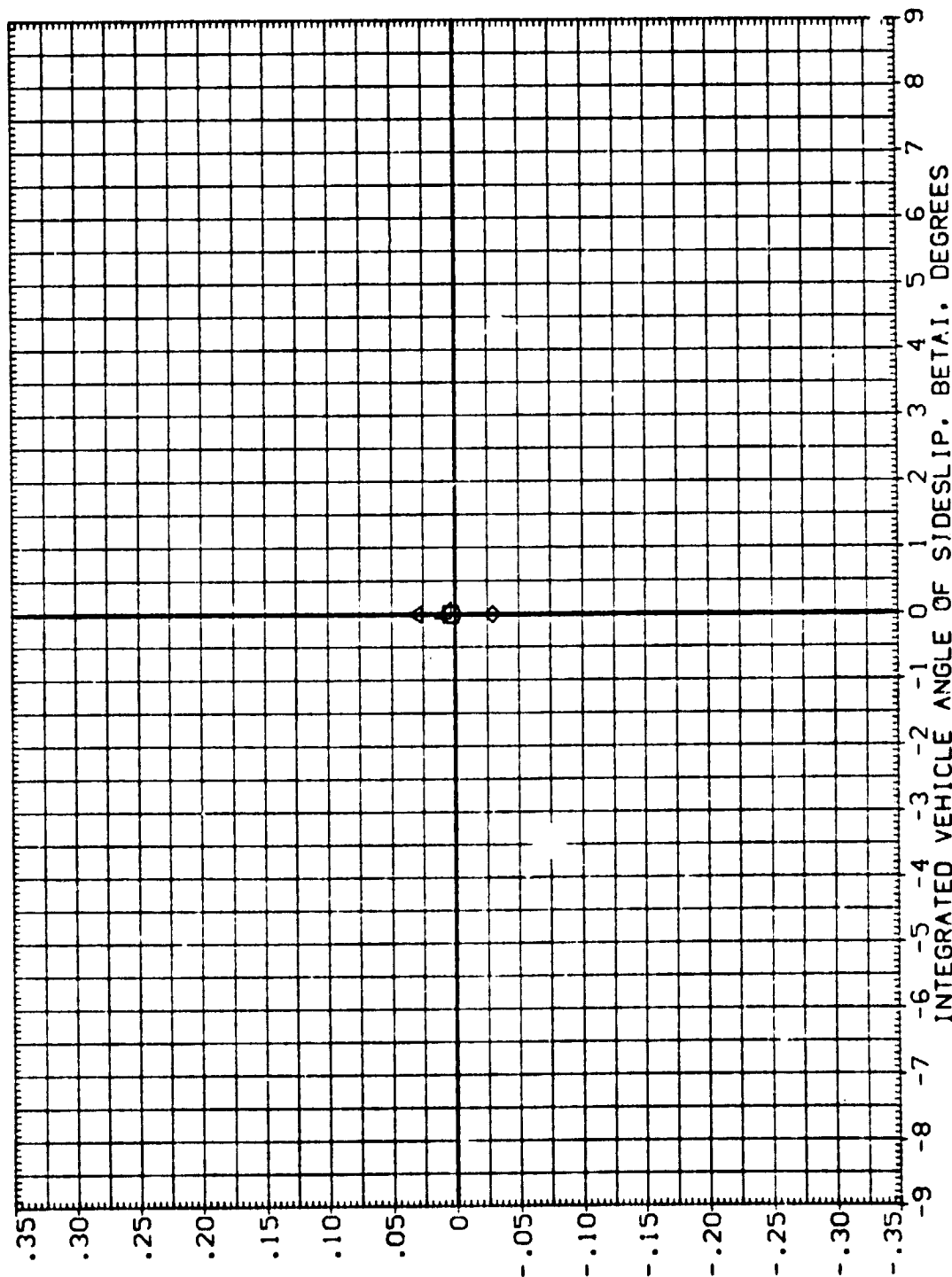


FIG. 23 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0

(A) ALPHA= -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LET044)	ORBITER-ALL HL SEALED	8.000	.000	2.000	.000	SREF 2690.0000 SO.FT.
(LET144)	LVAP TANK - ALL HL SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(LET144)	LVAP L-SRB - ALL HL SEALED	8.000	.000	2.000	.000	BREF 1297.0000 IN.
(LET144)	LVAP P-LRB - ALL HL SEALED	8.000	.000	2.000	.000	XMRP 976.0000 IN. XT
(LET144)	LVAP INT VEH ALL HL SEALED	8.000	.000	2.000	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

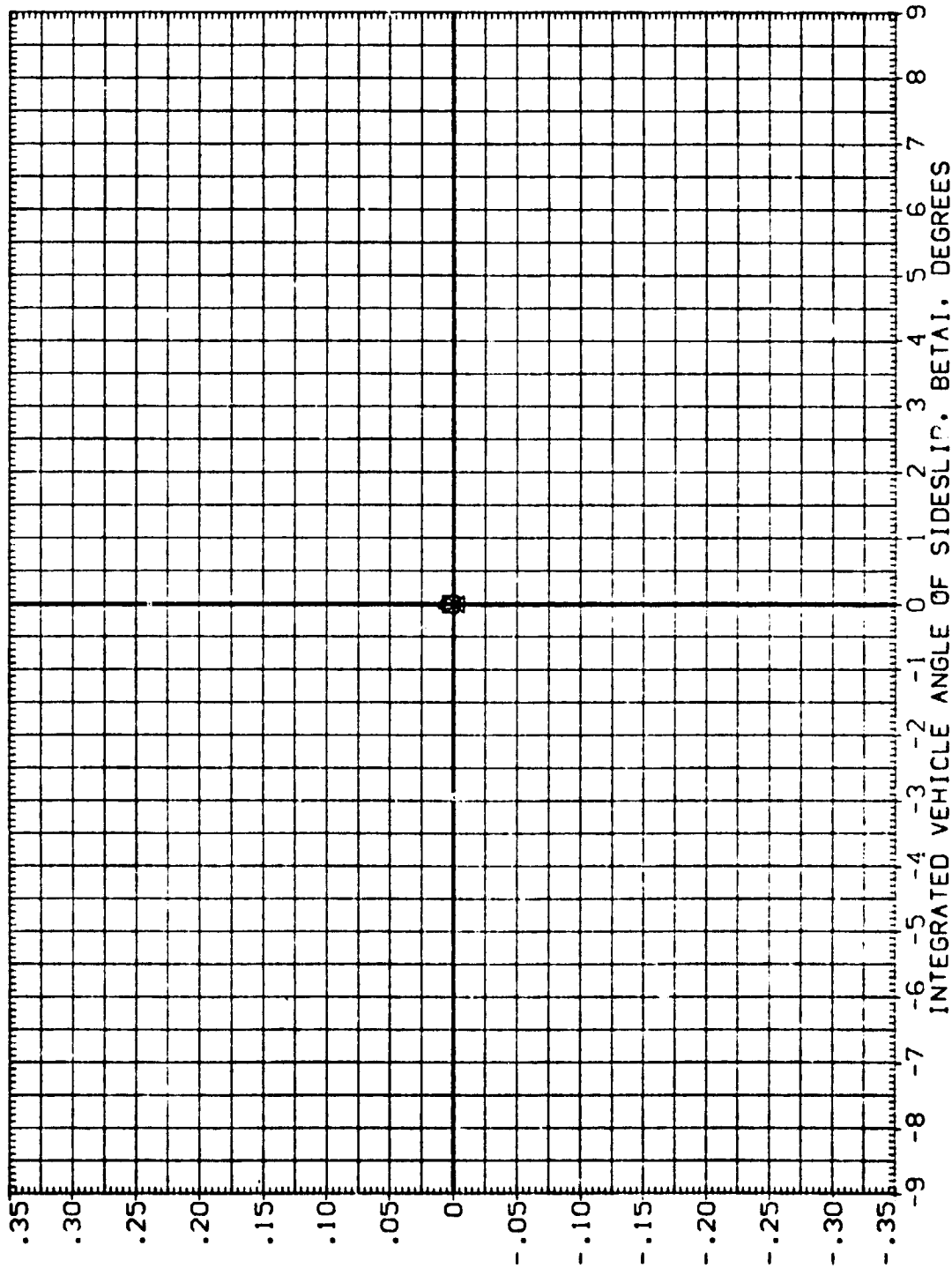


FIG. 23 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=2.0$ $DEV=8/0$

(C) ALPHA = -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(LET044)	AMES97-019C(IAB1) LVAP ORBITTER-ALL HL SEALED	8.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LET144)	AMES97-019C(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(LET144)	AMES97-019C(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.000	.000	BREF 1297.0000 IN.
(LET144)	AMES97-019C(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	.000	2.000	.000	XMRP 976.0000 IN.
(LET144)	AMES97-019C(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.000	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

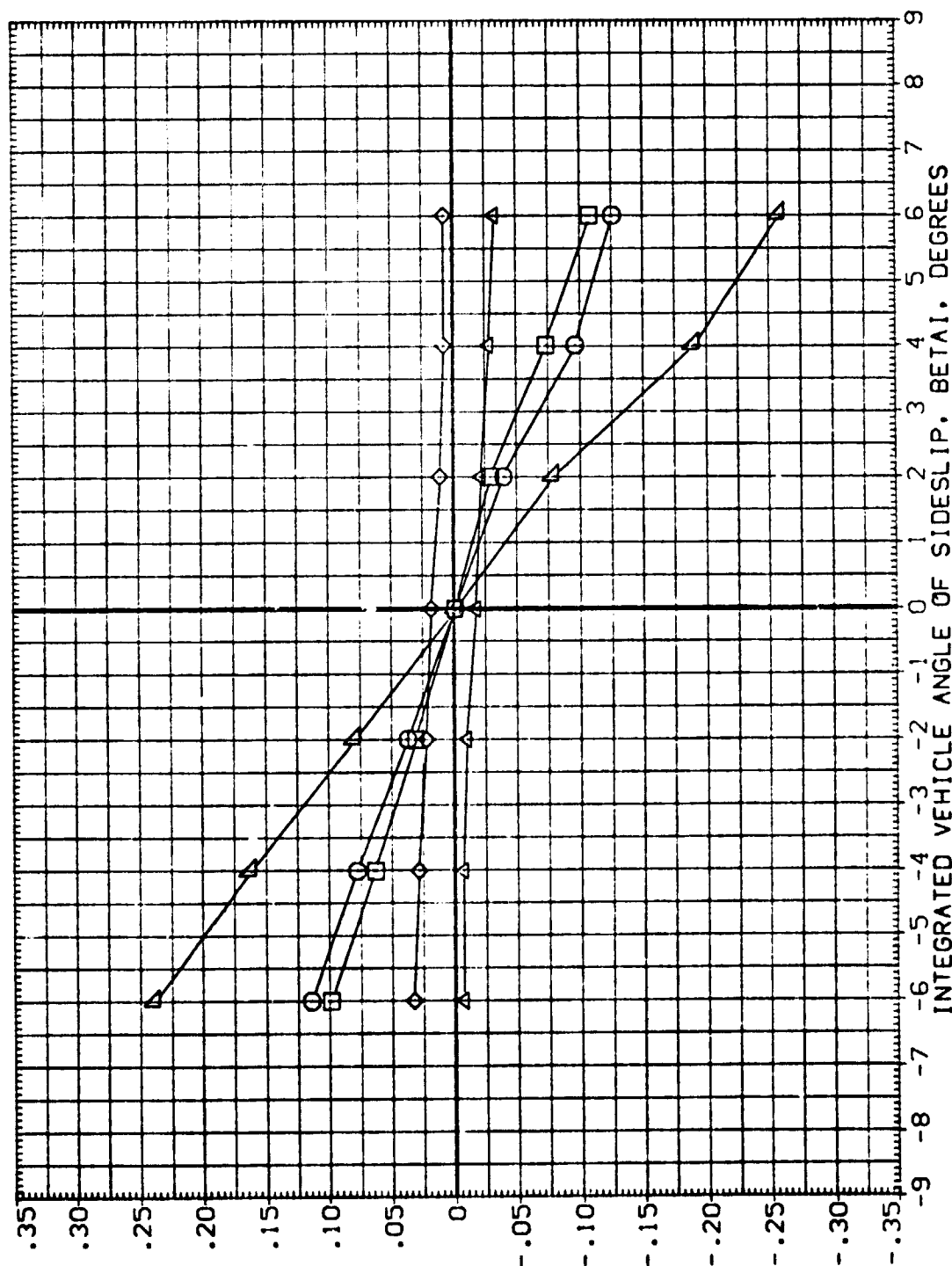


FIG. 23 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0

(D)ALPHA1= .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LE1044)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LE1144)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(LE144)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.000	.000	BREF 1297.0000 IN.
(LE144)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	.000	2.000	.000	XMRP 976.0000 IN. XT
(LE144)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.000	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

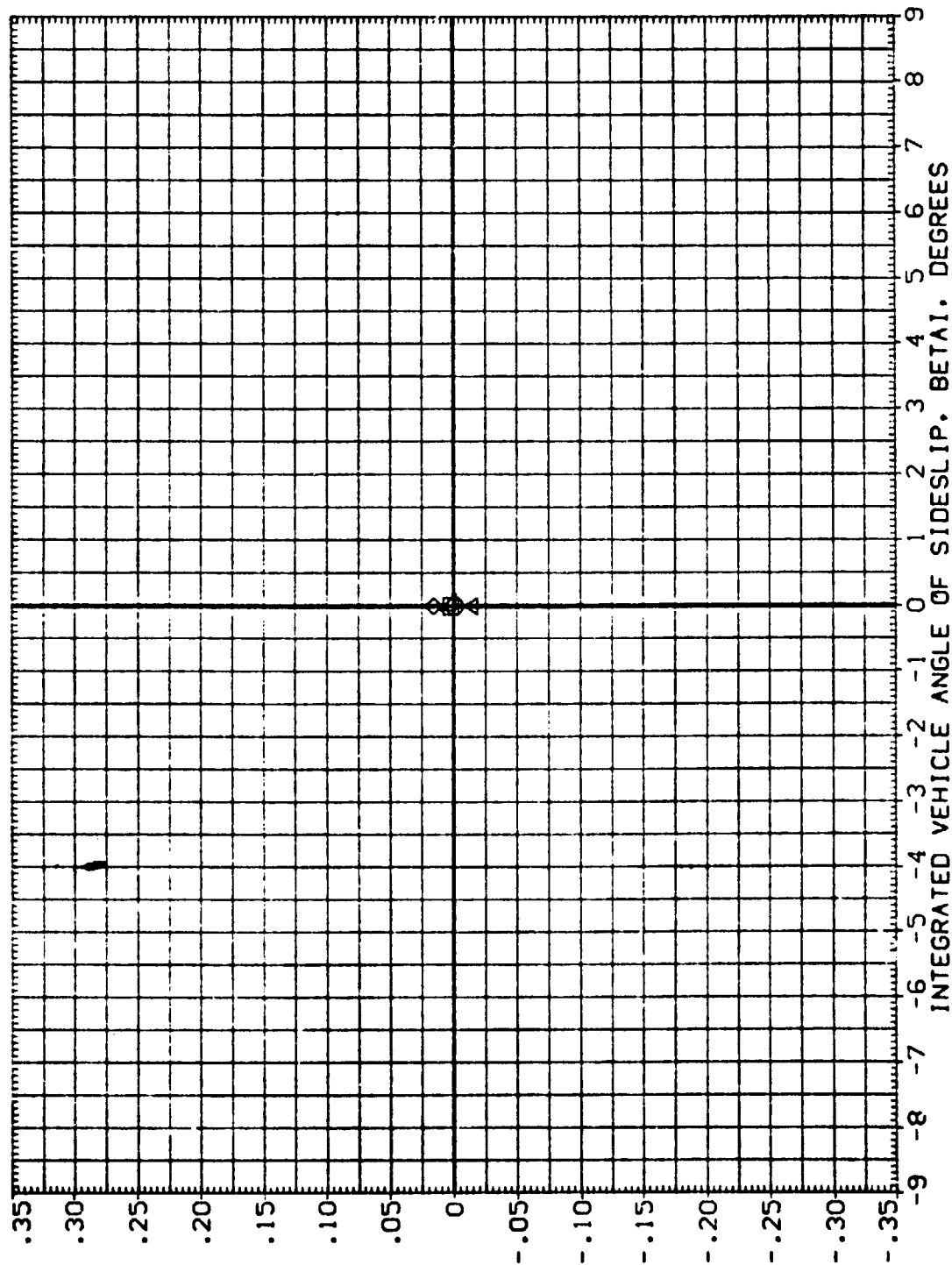


FIG. 23 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0

(E) ALPHA1 = 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LET044)	AME597-019(1A81) LVAP ORBITER-ALL ML SEALED	8.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LET144)	AME597-019(1A81) LVAP TANK - ALL ML SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(LET244)	AME597-019(1A81) LVAP L-SRB - ALL ML SEALED	8.000	.000	2.000	.000	BREF 1297.0000 IN.
(LET344)	AME597-019(1A81) LVAP R-LRB ALL ML SEALED	8.000	.000	2.000	.000	YMRP 976.0000 IN.
(LET44)	AME597-019(1A81) LVAP INT VEH ALL ML SEALED	8.000	.000	2.000	.000	ZMRP 400.0000 IN.
						SCALE .0300

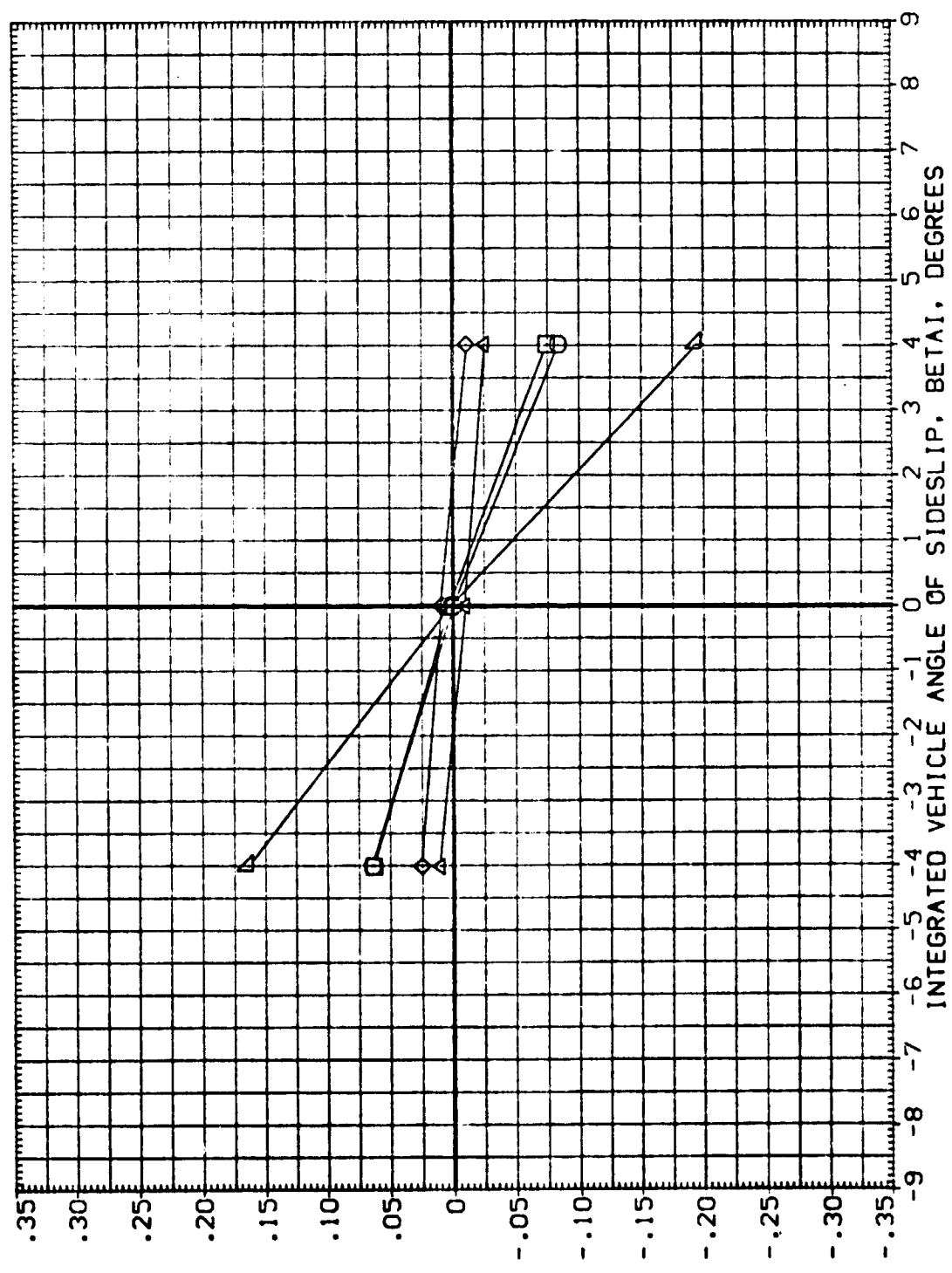


FIG. 23 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0

(F)ALPHA= 4.00

REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LE1044)	AME597-019(IAB1) LVAP ORBITTER-ALL HL SEALED	8.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LE1144)	AME597-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(LE1L44)	AME597-019(IAB1) LVAP L-SPB - ALL HL SEALED	8.000	.000	2.000	.000	BREF 1297.0000 IN.
(LE1R44)	AME597-019(IAB1) LVAP R-LRB ALL HL SEALED	8.000	.000	2.000	.000	XHRP 976.0000 IN. XT
(LE1T44)	AME597-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.000	.000	YHRP .0000 IN. YT
						ZHRP 400.0000 IN. ZT
						SCALE .0300

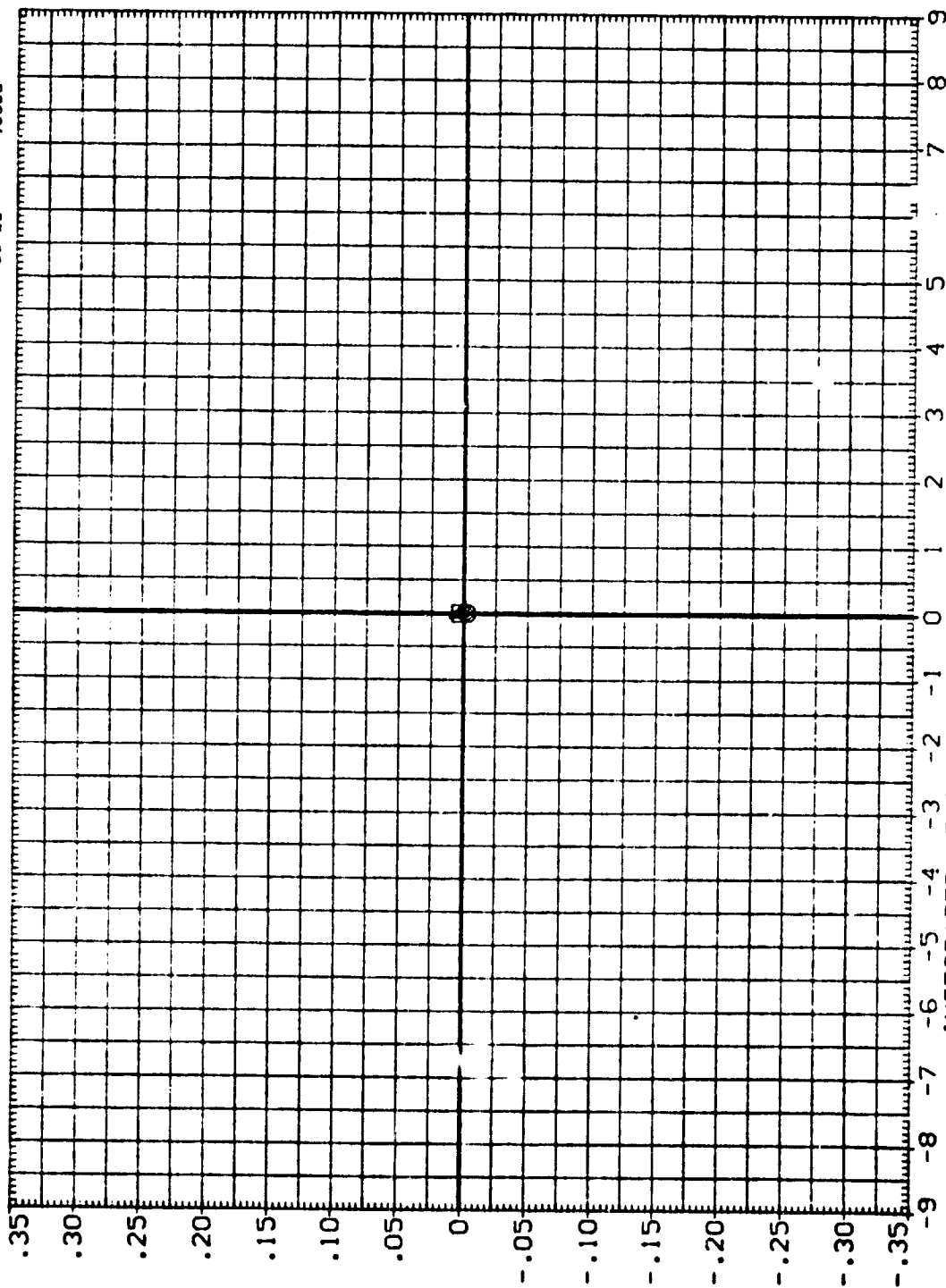


FIG. 23 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=2.0$ $DEV=8/0$
(G) $\alpha_{PHAI} = 6.00$ PAGE 529

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LET044)	AMES97-019(IAB1) LVAP	8.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LET144)	AMES97-019(IAB1) LVAP	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(LET144)	AMES97-019(IAB1) LVAP	8.000	.000	2.000	.000	BREF 1297.0000 IN.
(LET144)	AMES97-019(IAB1) LVAP	8.000	.000	2.000	.000	XMRP 976.3000 IN.
(LET144)	AMES97-019(IAB1) LVAP	8.000	.000	2.000	.000	YMRP 400.0000 IN.
(LET144)	AMES97-019(IAB1) LVAP	8.000	.000	2.000	.000	ZMRP 400.0000 IN.
						SCALE .0300

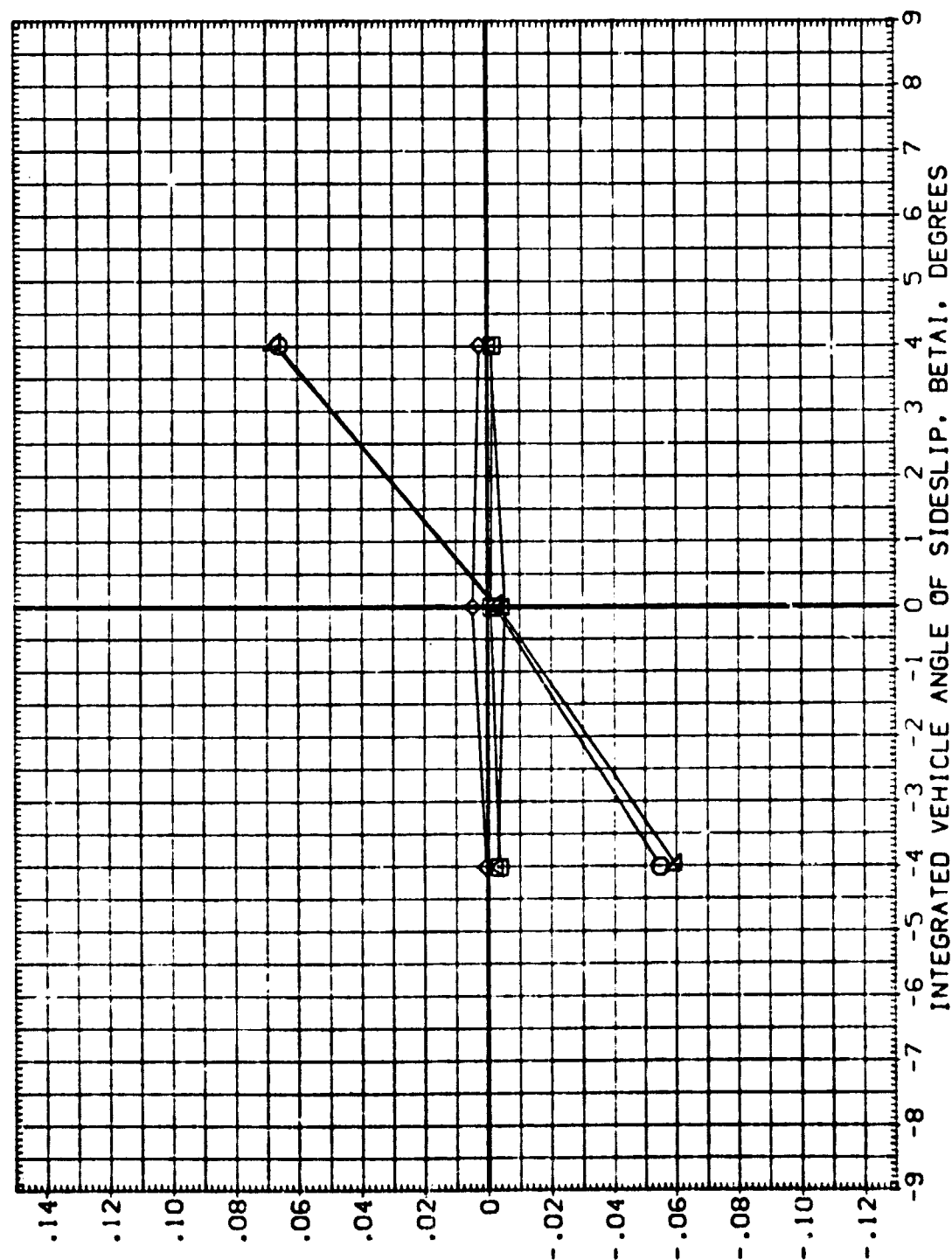


FIG. 23 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0
(B) ALPHA = -4.00

FOREBODY YAWING MOMENT COEFFICIENT, C_{YM}

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LET044)	AVES97-019(IAB1) LVAP ORBITER-ALL ML SEALED	8.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LET144)	AVES97-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(LET144)	AVES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	8.000	.000	2.000	.000	BREF 1297.0000 IN.
(LET144)	AVES97-019(IAB1) LVAP R-LRB - ALL ML SEALED	8.000	.000	2.000	.000	YMRP 976.0000 IN. XT
(LET144)	AVES97-019(IAB1) LVAP INT VEH ALL ML SEALED	8.000	.000	2.000	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

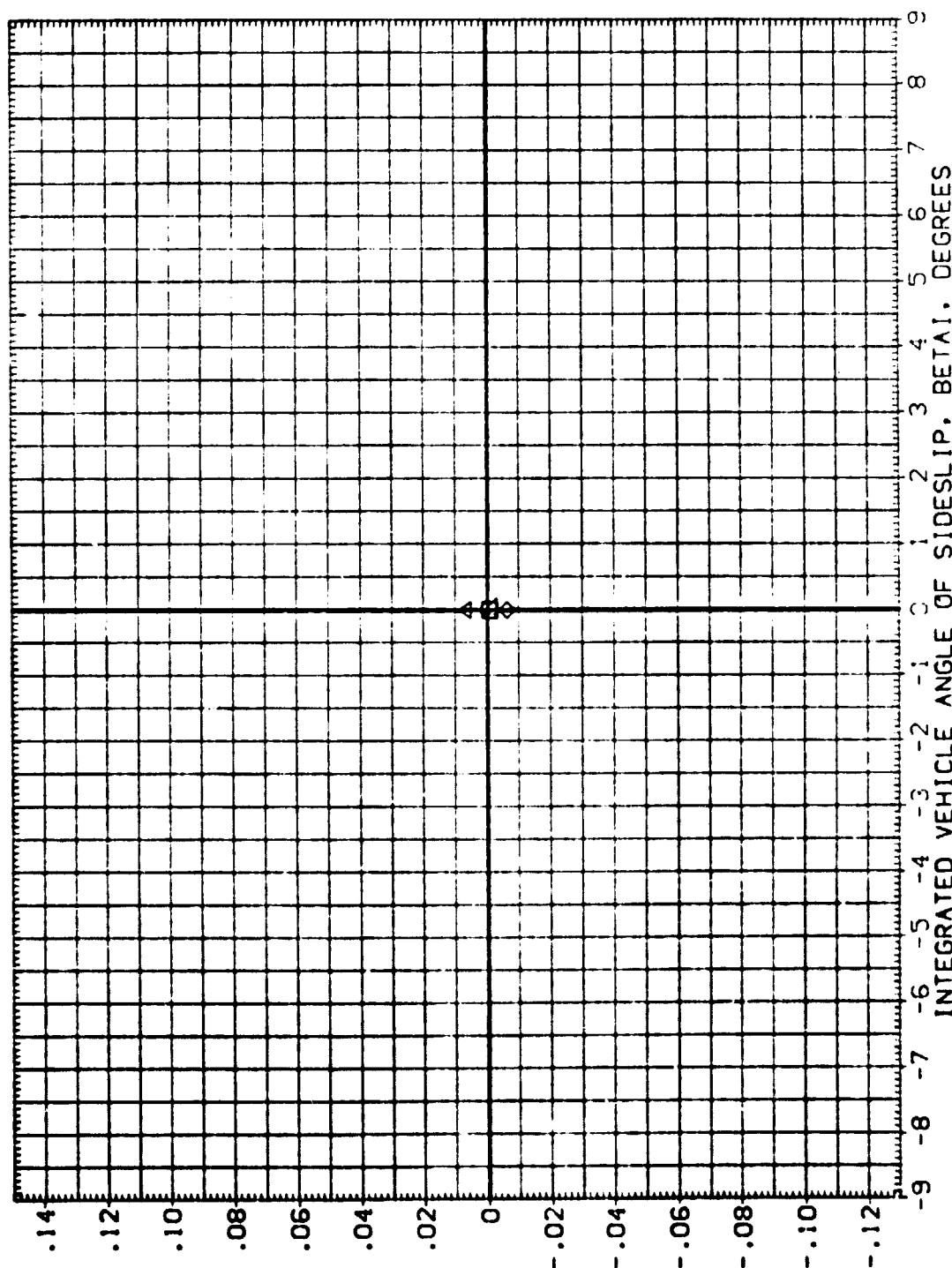


FIG. 23 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0

(C) ALPHA = -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-CB	MACH	SPDRBK	REFERENCE INFORMATION
(LETO44)	AMES97-019(IAB1) LVAP ORBITTER-ALL HL SEALED	8.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LETT44)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(LETL44)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.000	.000	BREF 1297.0000 IN.
(LETR44)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	.000	2.000	.000	XMRP 576.0000 IN. XT
(LIT144)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.000	.000	YMRP 400.0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

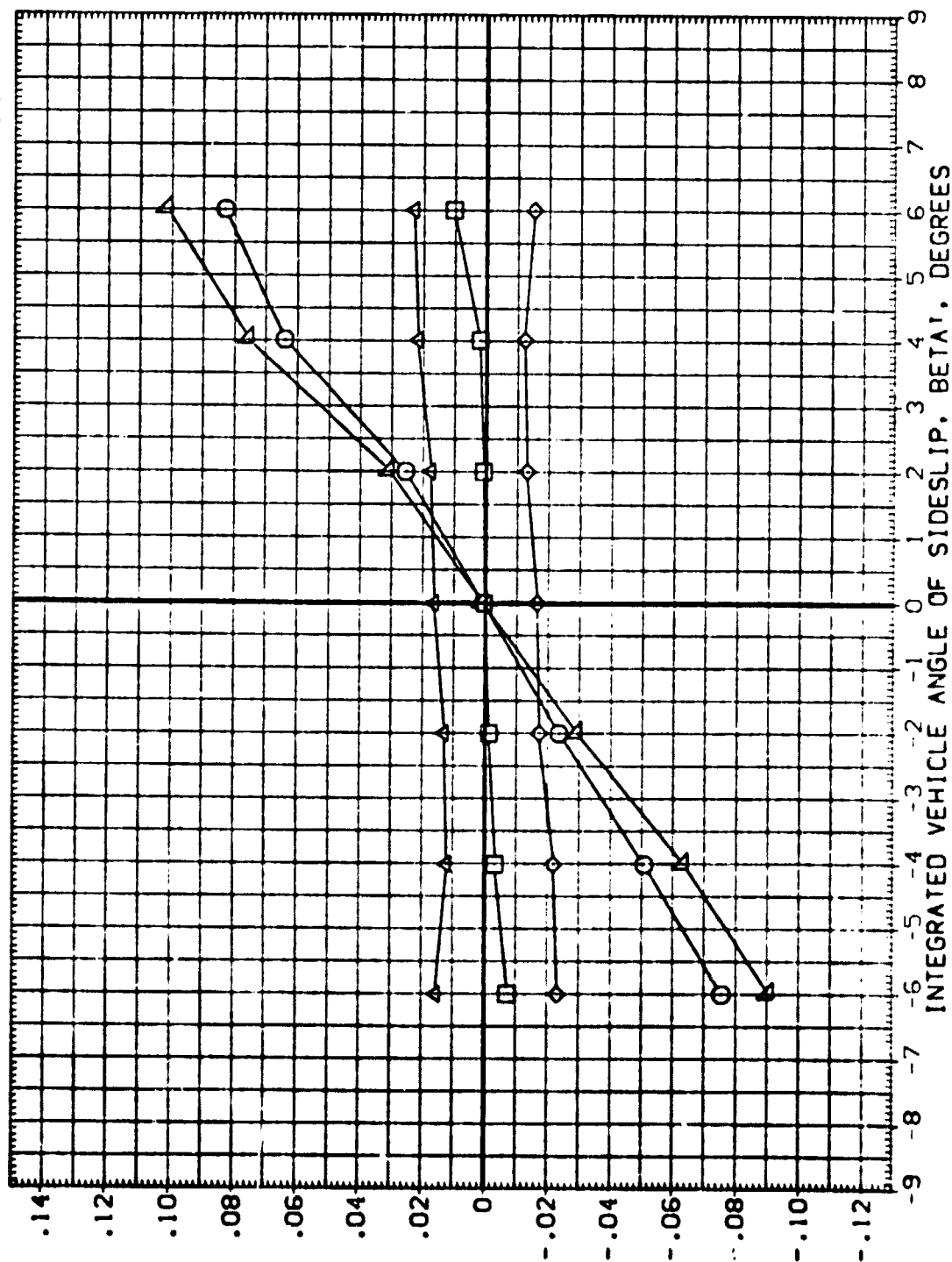


FIG. 23 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0

(D)ALPHA= .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LETO44)	AVES97-0191(A81) LVAP ORBITER-ALL HL SEALED	8.000	.000	2.000	.000	SREF 2590.0000 SQ.FT.
(LETI44)	AVES97-0191(A81) LVAP TANK - ALL HL SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(LETL44)	AVES97-0191(A81) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.000	.000	SREF 1297.0000 IN.
(LETR44)	AVES97-0191(A81) LVAP R-LRB - ALL HL SEALED	8.000	.000	2.000	.000	XMRP 976.0000 IN. XT
(LETI44)	AVES97-0191(A81) LVAP INT VEH ALL HL SEALED	8.000	.000	2.000	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

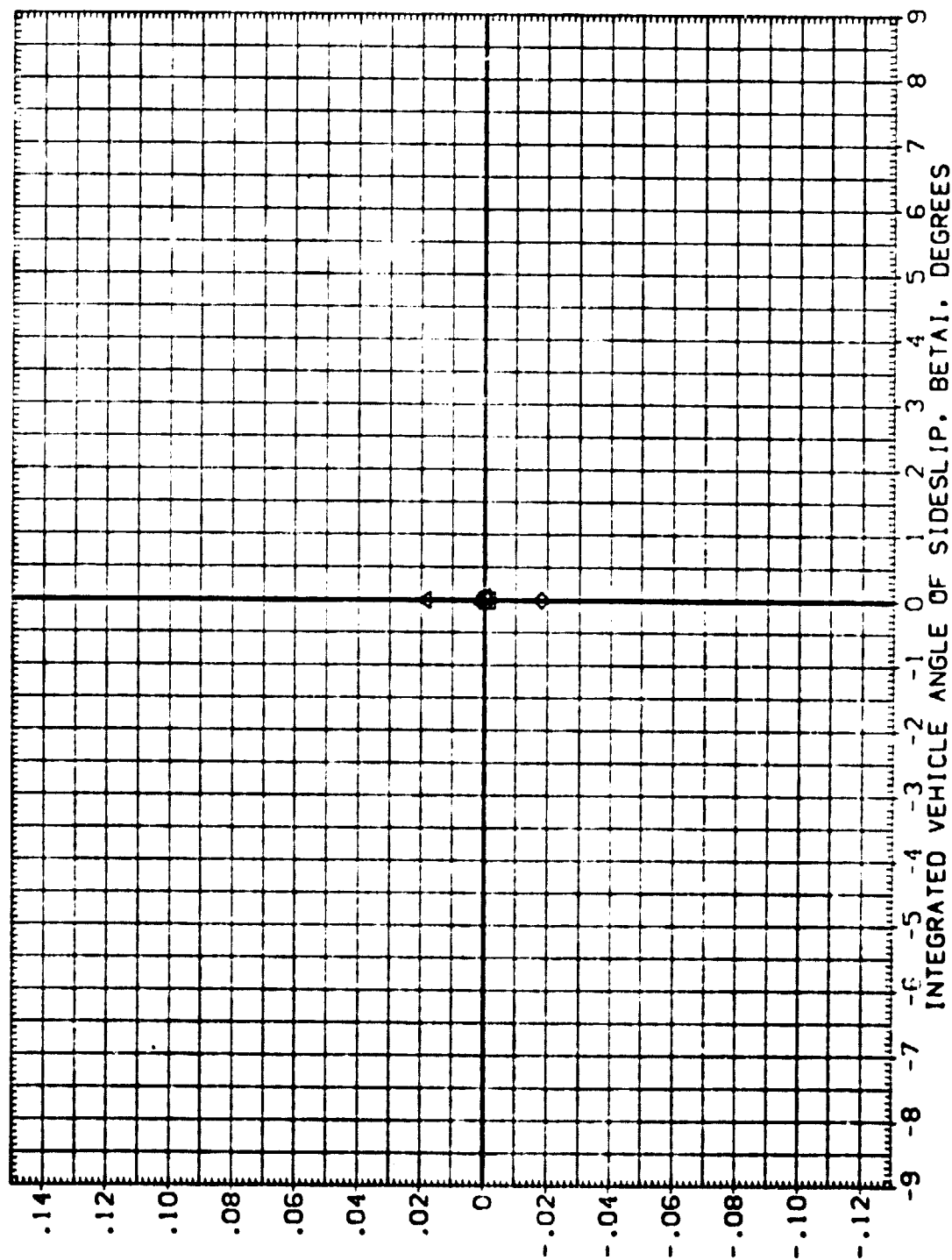


FIG. 23 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=2.0$ $DEV=8/0$
(E)ALPHA= 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-DB	MACH	SPOBKM	REFERENCE INFORMATION
(LE1044)	AME597-019(IAB1) LVAP ORB:TER-ALL ML SEALED	8.000	.000	2.000	.000	SREF 2690.0000 SO.FT.
(LE1144)	AME597-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(LE1444)	AME597-019(IAB1) LVAP L-SRB - ALL ML SEALED	8.000	.000	2.000	.000	BREF 1297.0000 IN.
(LE1844)	AME597-019(IAB1) LVAP R-LHB - ALL ML SEALED	8.000	.000	2.000	.000	YMRP 976.0000 IN.
(LE1144)	AME597-019(IAB1) LVAP INT VEH ALL ML SEALED	8.000	.000	2.000	.000	ZMRP 400.0000 IN.
						SCALE .0300

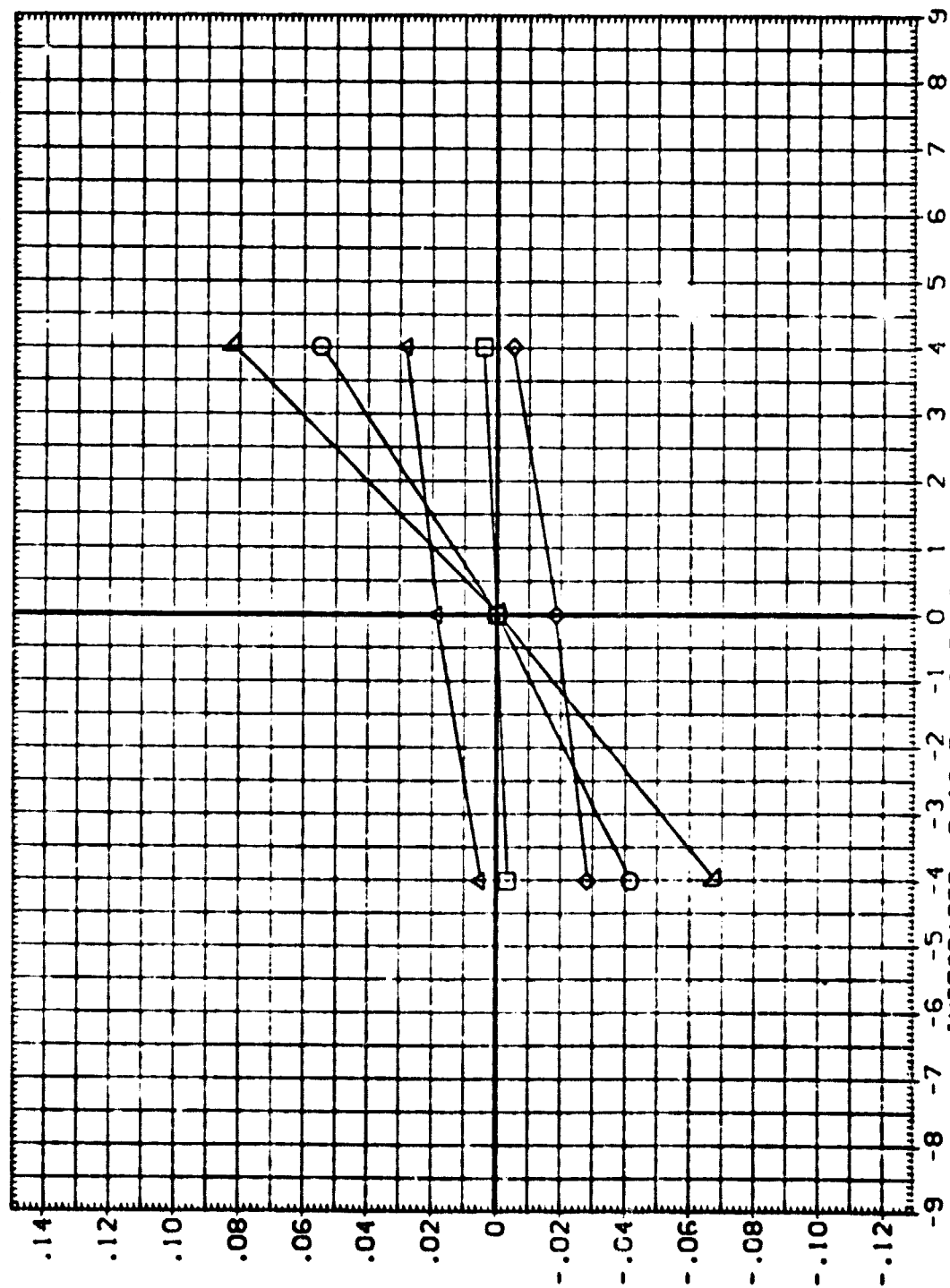


FIG. 23 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0
(F)ALPHA= 4.00

DATA SET SYMBOL CONFIGURATION DESCRIPTION ELV-IB ELV-OB MACH SPDBRK REFERENCE INFORMATION

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDBRK	REFERENCE INFORMATION
(LE1044)	AME597-019(IAB1) LVAP ORBITER-ALL ML SEALED	8.000	.000	2.000	.000	SREF 2690.0000 SO.FT.
(LE1744)	AME597-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(LE1444)	AME597-019(IAB1) LVAP L-SRB - ALL ML SEALED	8.000	.000	2.000	.000	BREF 1297.0000 IN.
(LE1444)	AME597-019(IAB1) LVAP R-LRB - ALL ML SEALED	8.000	.000	2.000	.000	XMRP 976.0000 IN. XT
(LE1444)	AME597-019(IAB1) LVAP INT VEH ALL ML SEALED	8.000	.000	2.000	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

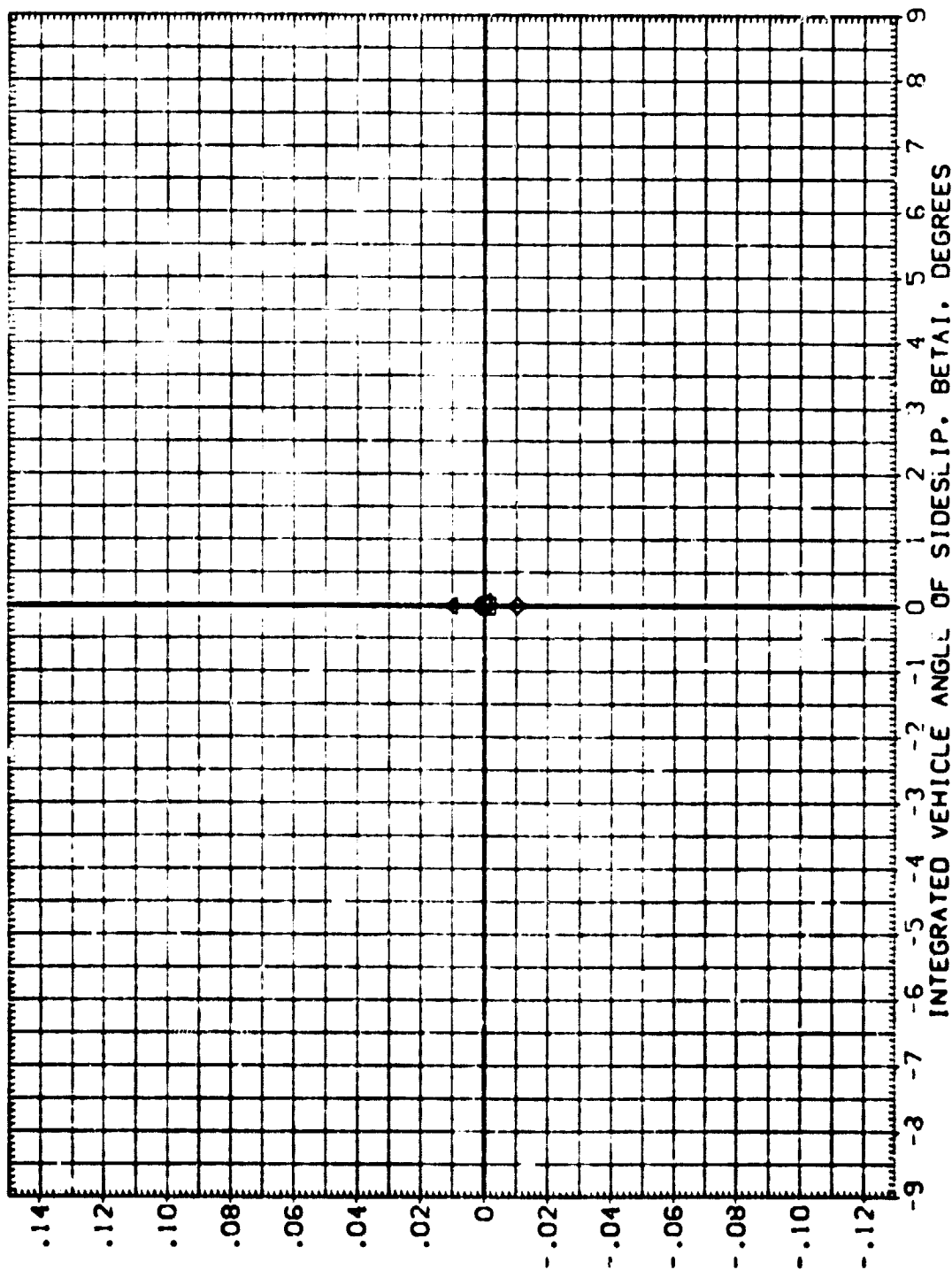
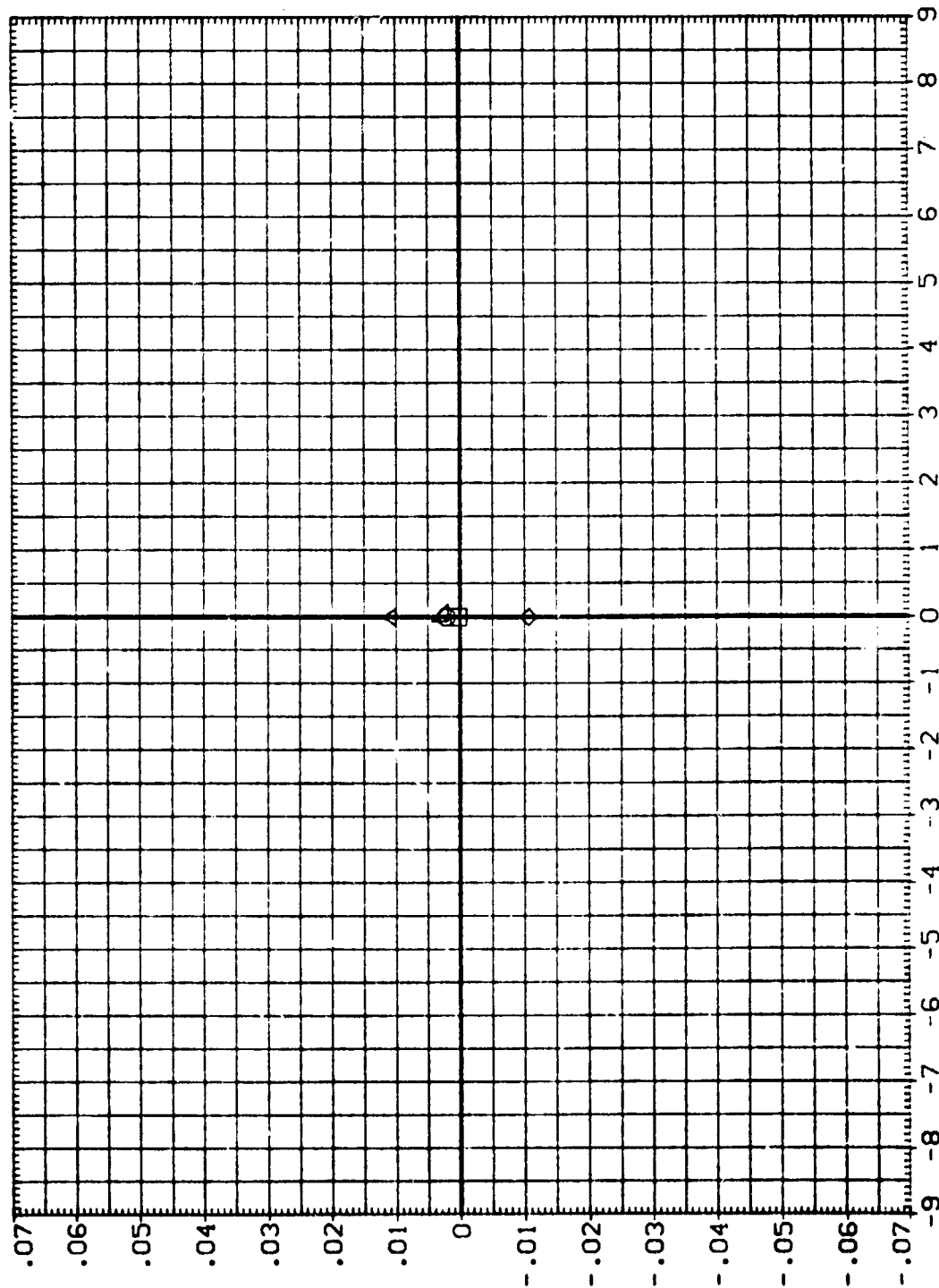


FIG. 23 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0
(G) ALPHA: 6.00 PAGE 536

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION			
(LETO44)	AMES97-019(IAB1) LVAP ORBITTER-ALL HL SEALED	8.000	.000	2.000	.000	SREF	2690.0000	SO.FT.	
(LETT44)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.000	.000	LREF	1297.0000	IN.	
(LETL44)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.000	.000	BREF	1297.0000	IN.	XT
(LETR44)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	.000	2.000	.000	XMRP	976.0000	IN.	YT
(LETI44)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.000	.000	YMRP	.0000	IN.	ZT
						ZMRP	400.0000	IN.	ZT
						SCALE	.0300		



INTEGRATED VEHICLE ANGLE OF SIDESLIP, BETA, DEGREES

FIG. 23 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0

(A) ALPHA = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LET044)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LET144)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(LET144)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.000	.000	BREF 1297.0000 IN.
(LET144)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	8.000	.000	2.000	.000	XMRP 976.0000 IN. XT
(LET144)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.000	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

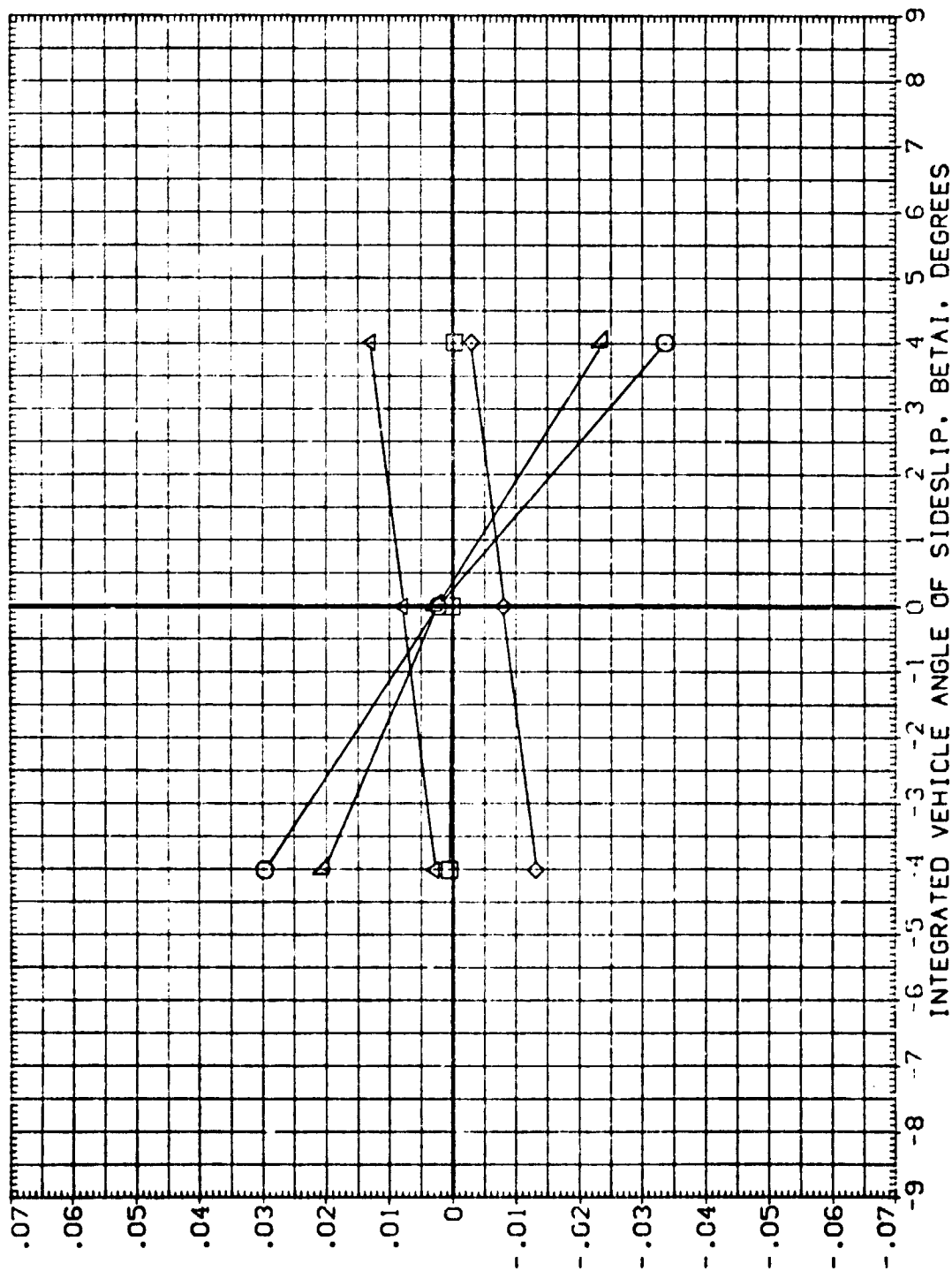


FIG. 23 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0
(B) ALPHA = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	LV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LET044)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LET144)	AMES97-019(IAB1) LVAP TANK - ALL WL SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(LET244)	AMES97-019(IAB1) LVAP L-SRB - ALL WL SEALED	8.000	.000	2.000	.000	BREF 1297.0000 IN.
(LET344)	AMES97-019(IAB1) LVAP R-LRB ALL WL SEALED	8.000	.000	2.000	.000	XMRP 976.0000 IN. XI
(LET444)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.000	.000	ZMRP 400.0000 IN. YI
						SCALE .0300

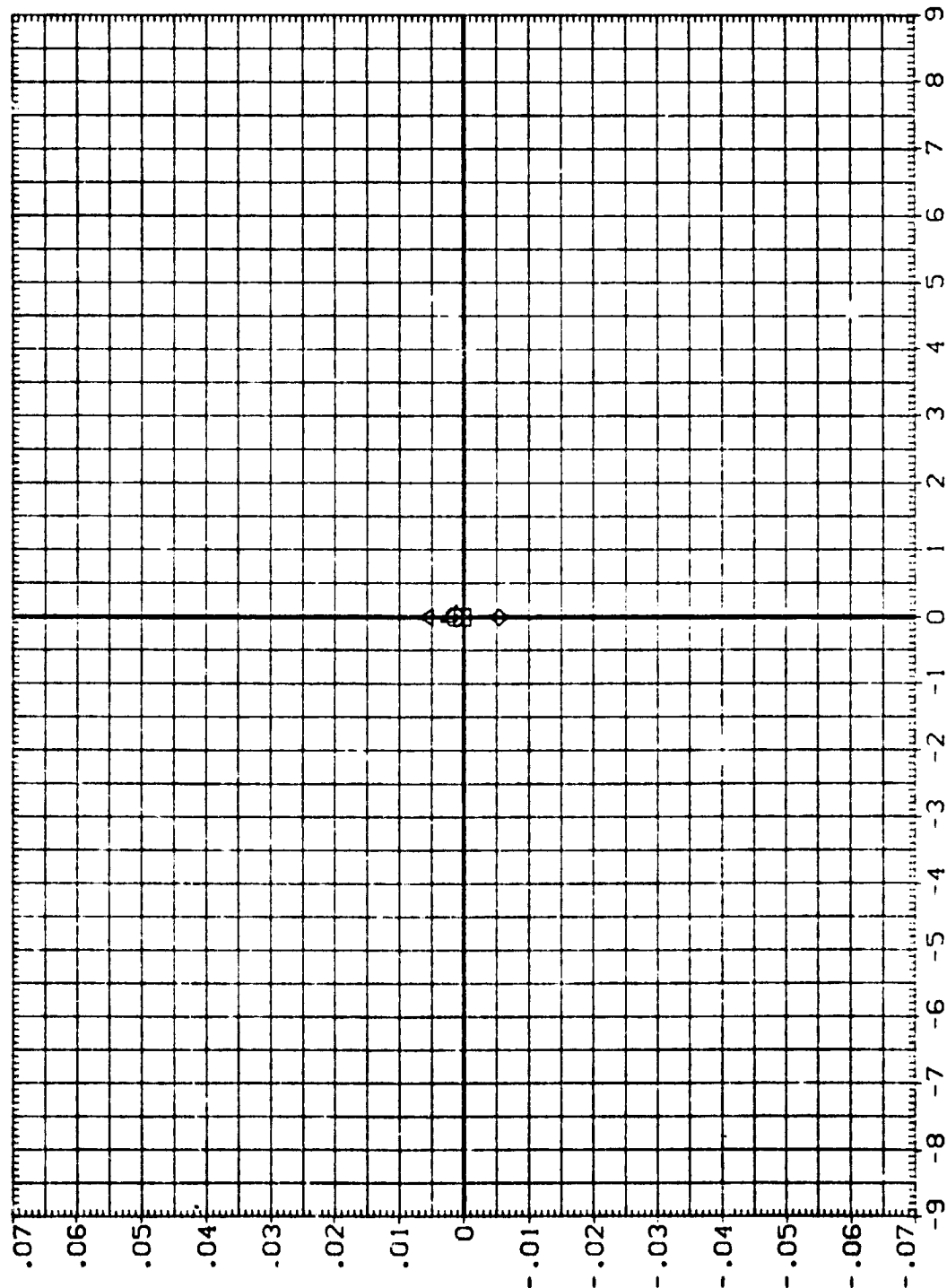


FIG. 23 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0

(C)ALPHA= -2.00

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LETO44)	ORBITER-ALL HL SEALED	8.000	.000	2.000	.000	SREF 2690.0000 SO.FT.
(LETT44)	TANK - ALL HL SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(LETL44)	L-SRB - ALL HL SEALED	8.000	.000	2.000	.000	BREF 1297.0000 IN.
(LETR44)	R-LRB - ALL HL SEALED	8.000	.000	2.000	.000	XMRP 976.0000 IN. XT
(LETI44)	LVAP INT VEH ALL HL SEALED	8.000	.000	2.000	.000	YMRP 400.0000 IN. YT
						SCALE .0300

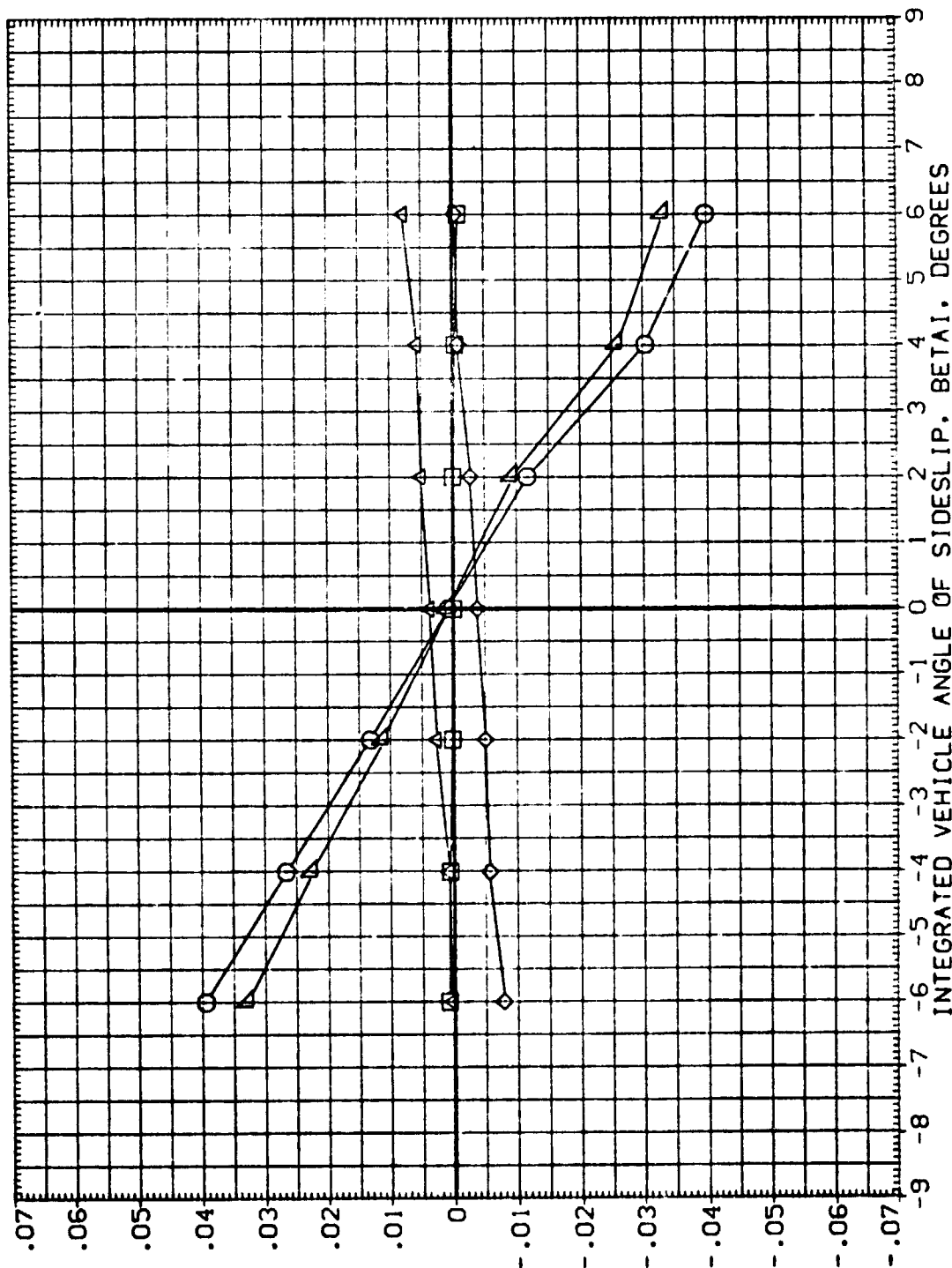


FIG. 23 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0
(O)ALPHA= .00

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION			
(LET044)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	.000	2.000	.000	SREF	2693.0000	SO.FT.	
(LET144)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.000	.000	LREF	1297.0000	IN.	
(LET244)	AMES97-019(IAB1) LVAP L-SPB - ALL HL SEALED	8.000	.000	2.000	.000	BREF	1297.0000	IN.	XT
(LET344)	AMES97-019(IAB1) LVAP R-SPB - ALL HL SEALED	8.000	.000	2.000	.000	XMRP	976.0000	IN.	YT
(LET444)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.000	.000	ZMRP	400.0000	IN.	ZT
						SCALE	.0300		

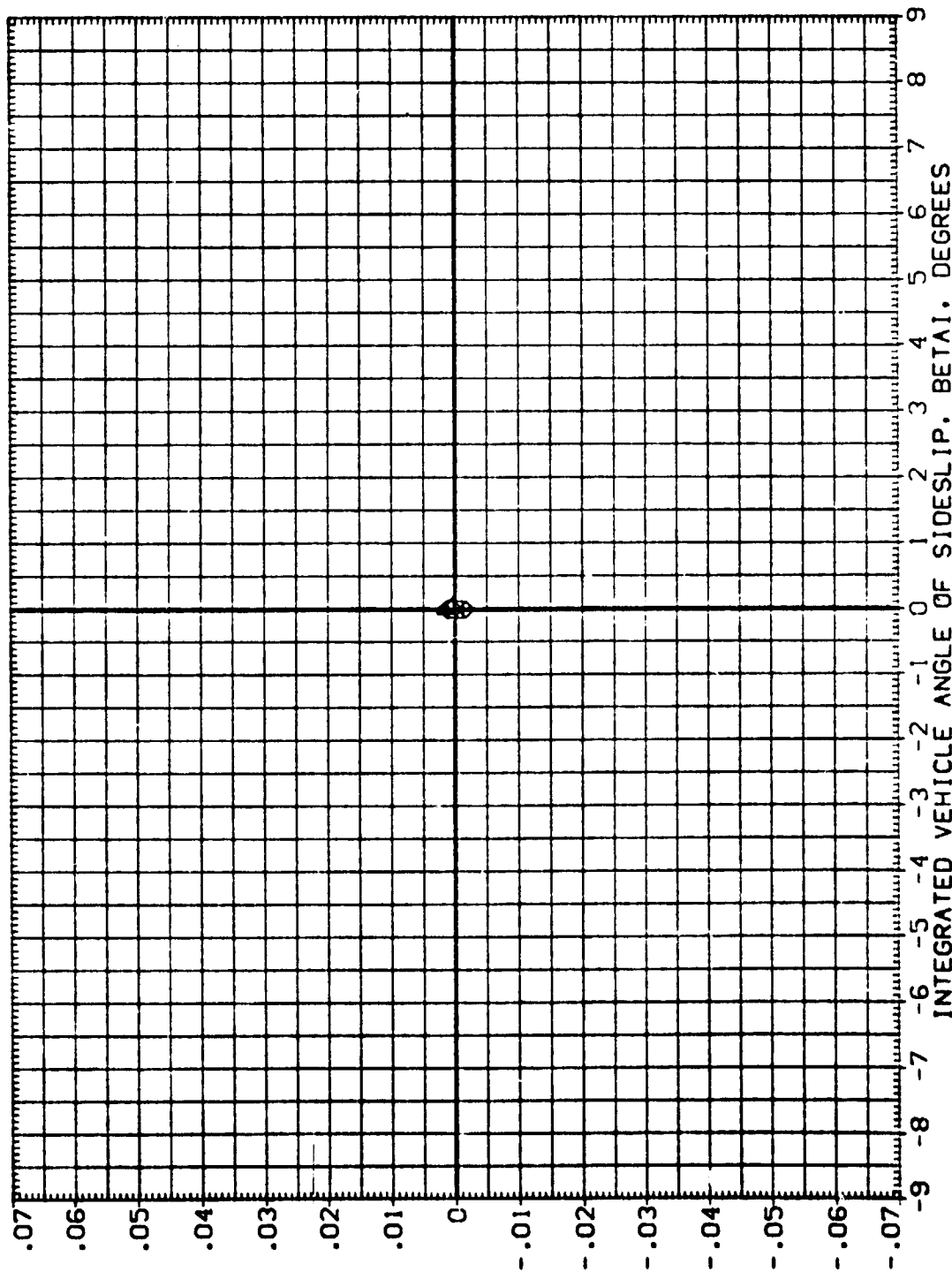


FIG. 23 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0

(E) ALPHA = 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-08	MACH	SPDBRK	REFERENCE INFORMATION
(LET044)	AMES97-019(1A81) LVAP ORBITTER-ALL HL SEALED	8.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LET144)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(LET144)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.000	.000	BREF 1297.0000 IN.
(LET144)	AMES97-019(1A81) LVAP R-LRB - ALL HL SEALED	8.000	.000	2.000	.000	YMRP 976.0000 IN.
(LET144)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	.000	2.000	.000	ZMRP 400.0000 IN.
						SCALE .0300

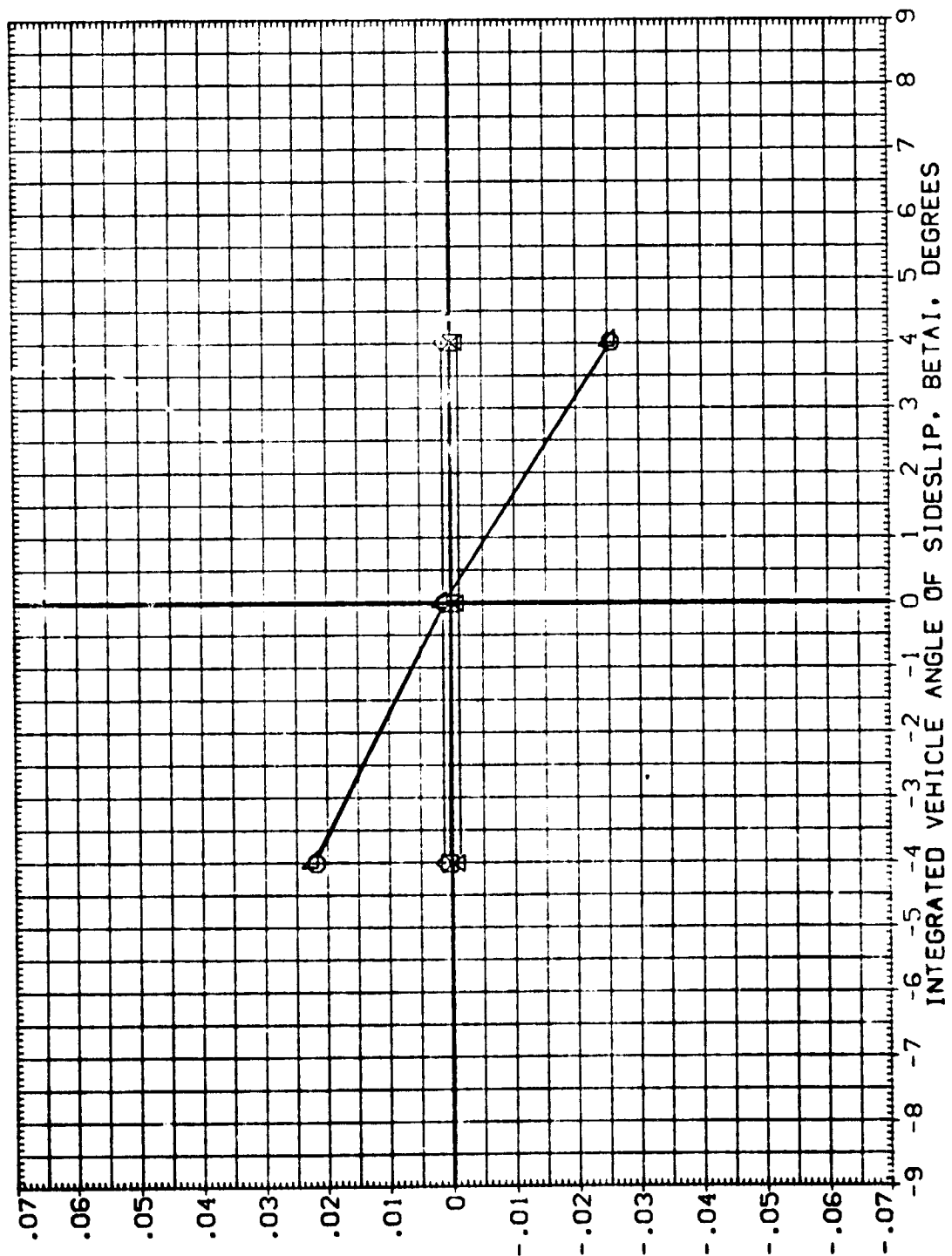


FIG. 23 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0
(F)ALPHA= 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-08	MACH	SPDBRK	REFERENCE INFORMATION
(LET044)	AMES97-019([AB1]) LVAP ORBITER-ALL HL SEALED	8.000	.000	2.000	.000	SREF 2690.0000 SO.FT.
(LET144)	AMES97-019([AB1]) LVAP TANK - ALL HL SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(LET144)	AMES97-019([AB1]) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.000	.000	BREF 1297.0000 IN.
(LET144)	AMES97-019([AB1]) LVAP P-LRB ALL HL SEALED	8.000	.000	2.000	.000	XMRP 976.0000 IN. XT
(LET144)	AMES97-019([AB1]) LVAP INT VEH ALL HL SEALED	8.000	.000	2.000	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

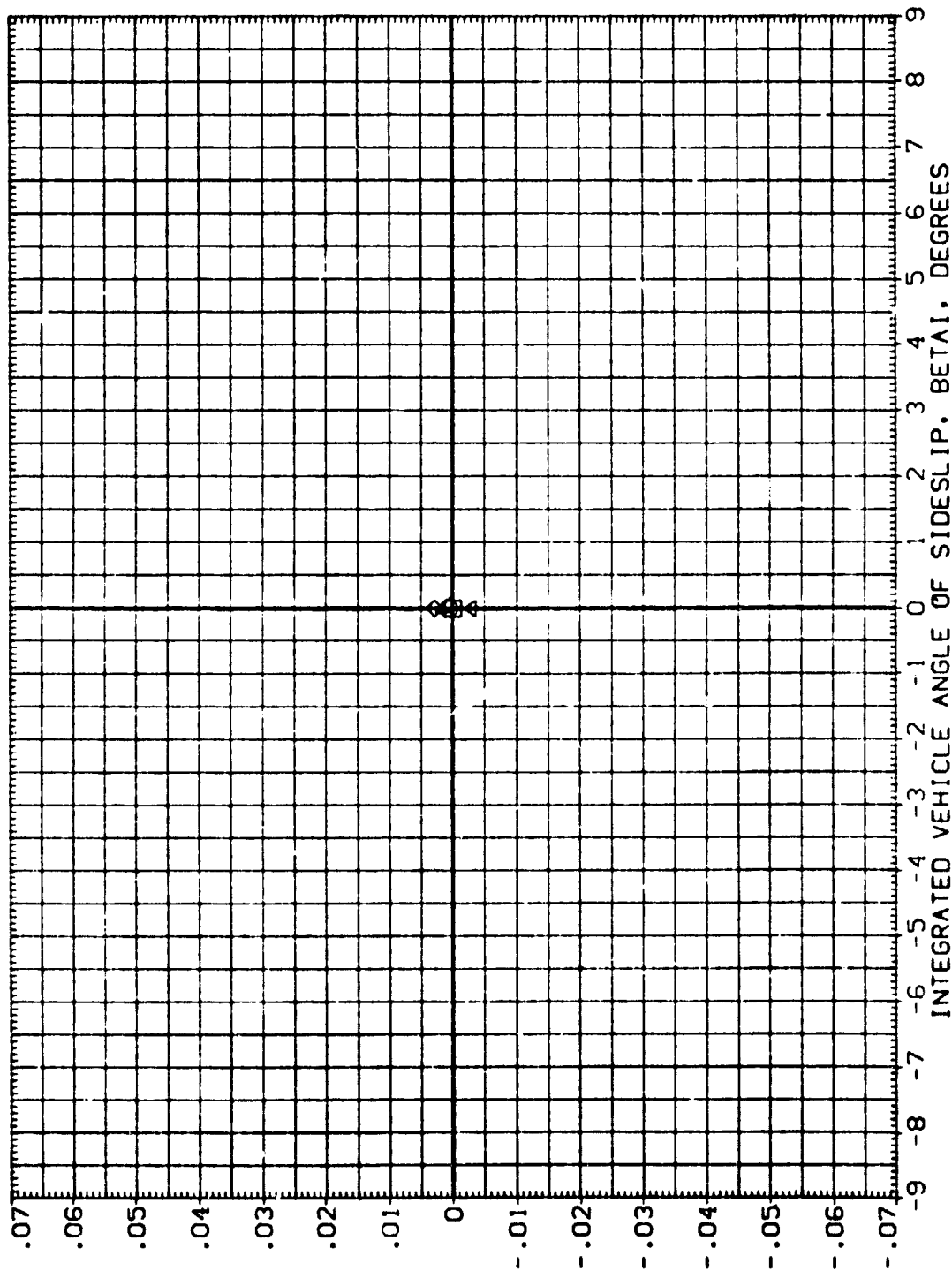


FIG. 23 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0
(G) ALPHA = 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	WACH	SPOBRK	REFERENCE INFORMATION
(LET044)	AME597-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	.000	2.000	.000	SREF 2690.0000 SO.FT.
(LET144)	AME597-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(LET144)	AME597-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.000	.000	BREF 1297.0000 IN.
(LET144)	AME597-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	.000	2.000	.000	YMRP 976.0000 IN. XT
(LET144)	AME597-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.000	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

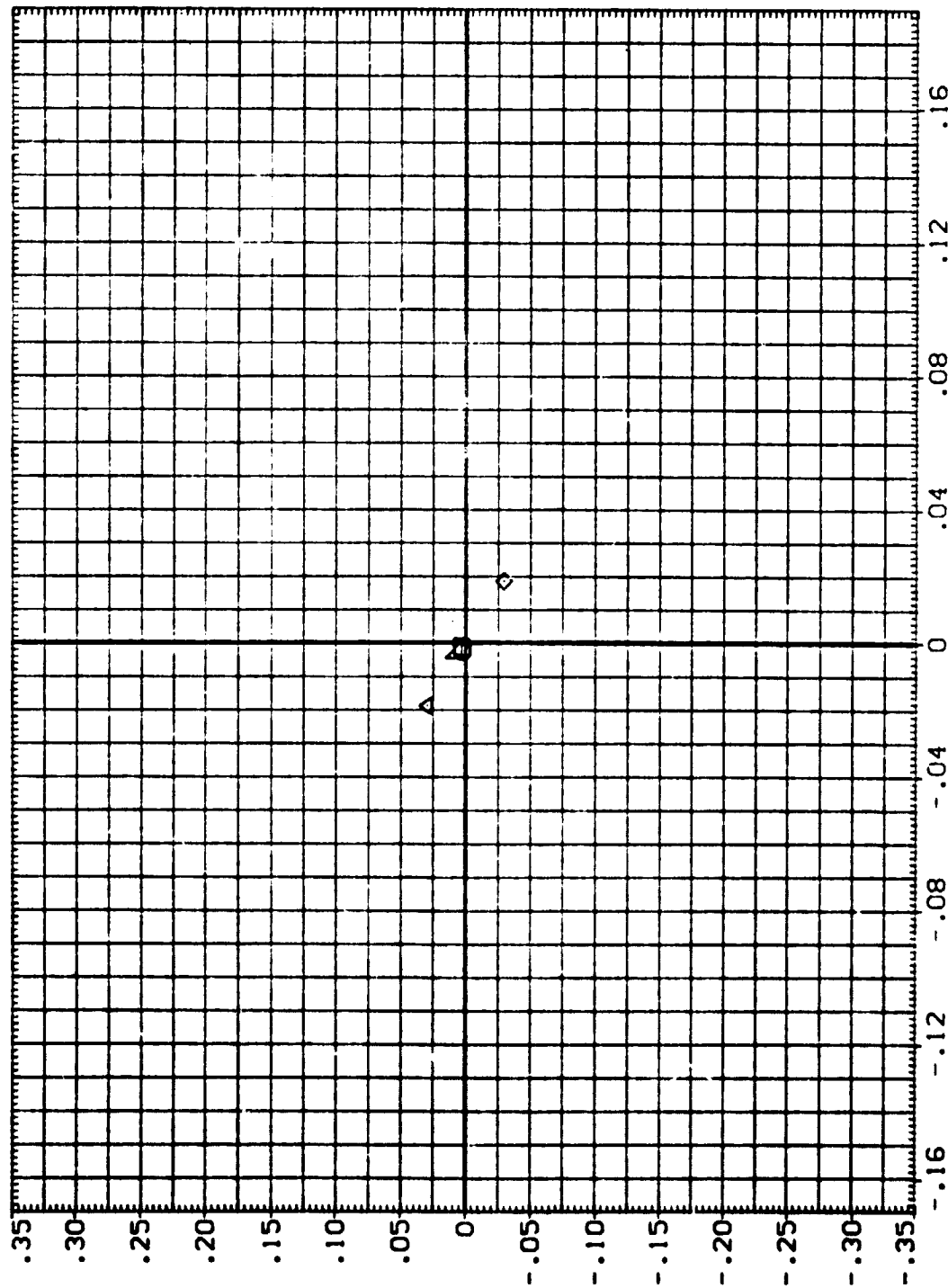


FIG. 23 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0

(A) ALPHA = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MAG.	SPOBRK	REFERENCE INFORMATION
(LETR44)	AME S97-019(IAB1) LVAP CRB1TER-AL' HL SEALED	8.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LETR44)	AME S97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(LETR44)	AME S97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.000	.000	BREF 1297.0000 IN.
(LETR44)	AME S97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	.000	2.000	.000	XMRP 976.0000 IN.
(LETR44)	AME S97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.000	.000	YMRP 400.0000 IN.
(LETR44)						ZMRP 400.0000 IN.
						SCALE .0300

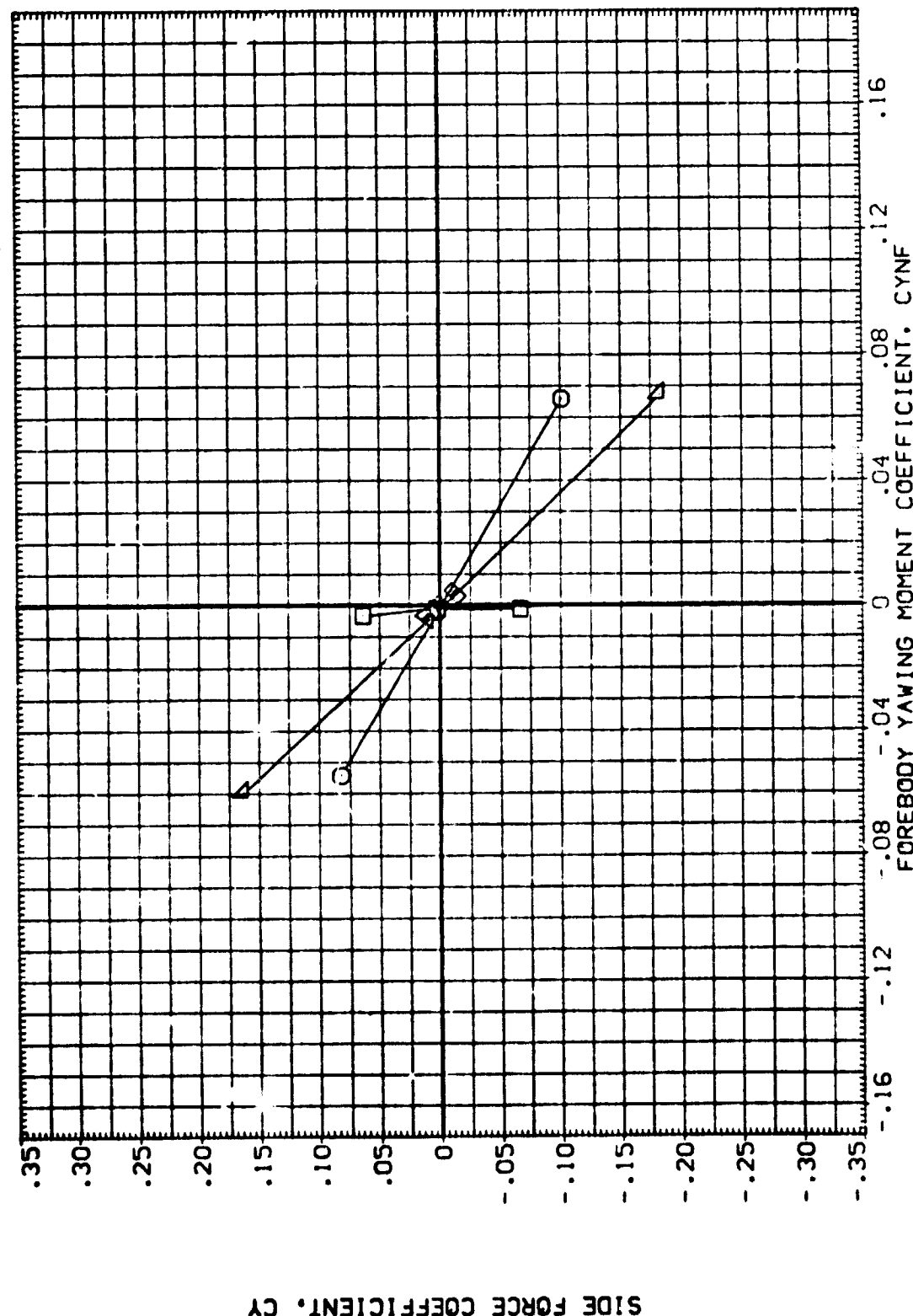


FIG. 23 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=2.0$ $DEV=8/0$

(B) $ALPHA= -4.00$

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(LETO44)	AME597-019(1A81) LVAP	8.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LETT44)	AME597-019(1A81) LVAP	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(LETL44)	AME597-019(1A81) LVAP	8.000	.000	2.000	.000	BREF 1297.0000 IN.
(LETR44)	AME597-019(1A81) LVAP	8.000	.000	2.000	.000	YMRP 976.0000 IN.
(LETT44)	AME597-019(1A81) LVAP	8.000	.000	2.000	.000	ZMRP 400.0000 IN.
						SCALE .0300

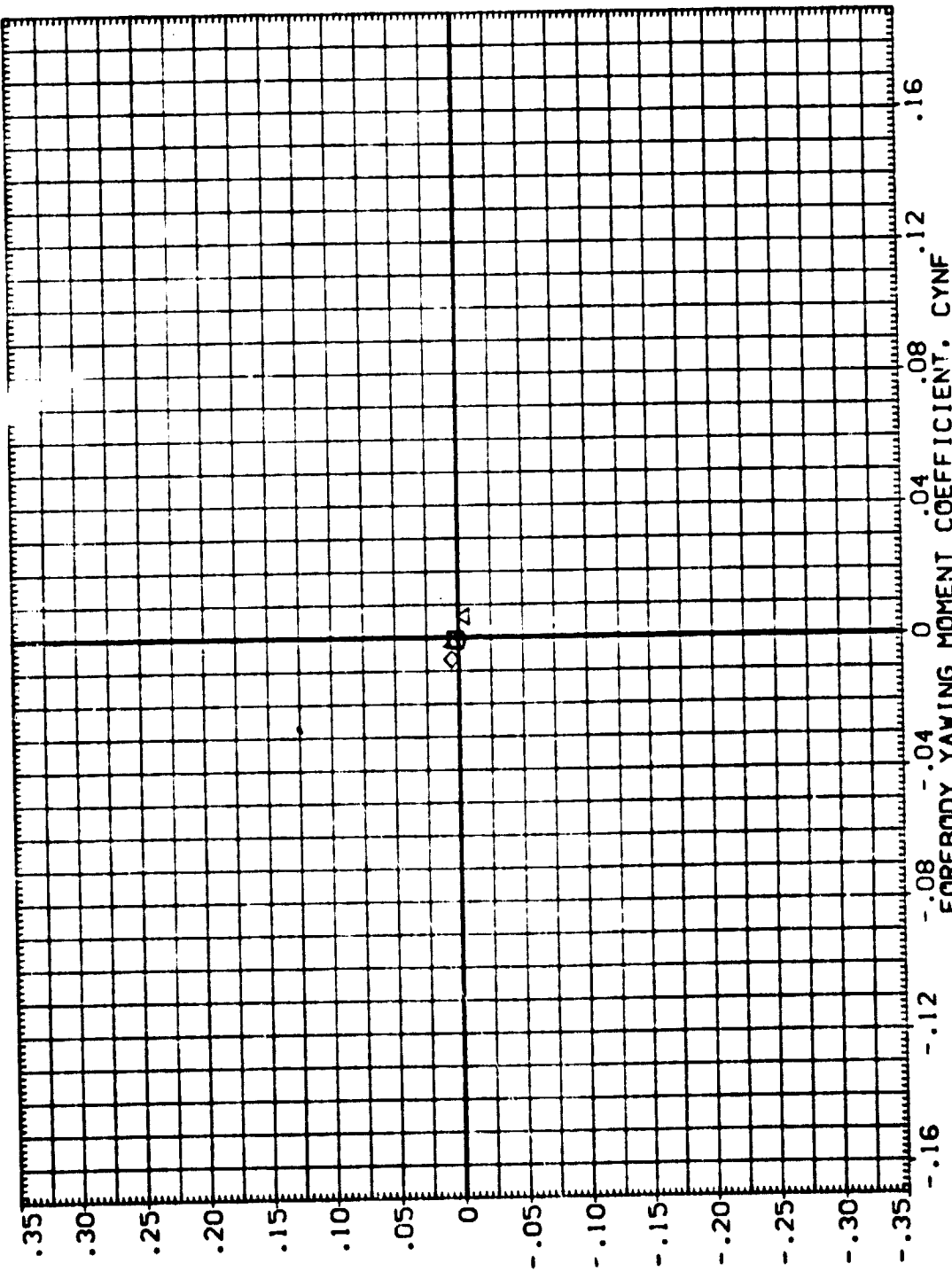


FIG. 23 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS. M=2.0 DEV=8/0
(C)ALPHA= -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDRK	REFERENCE INFORMATION
(LETO44)	AMES97-019(IAB1) LVAP ORBITER-ALL ML SEALED	8.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LETT44)	AMES97-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(LETL44)	AMES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	8.000	.000	2.000	.000	BREF 1297.0000 IN.
(LETR44)	AMES97-019(IAB1) LVAP R-LRB ALL ML SEALED	8.000	.000	2.000	.000	YMRP 976.0000 IN. XT
(LETT44)	AMES97-019(IAB1) LVAP INT VEM ALL ML SEALED	8.000	.000	2.000	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

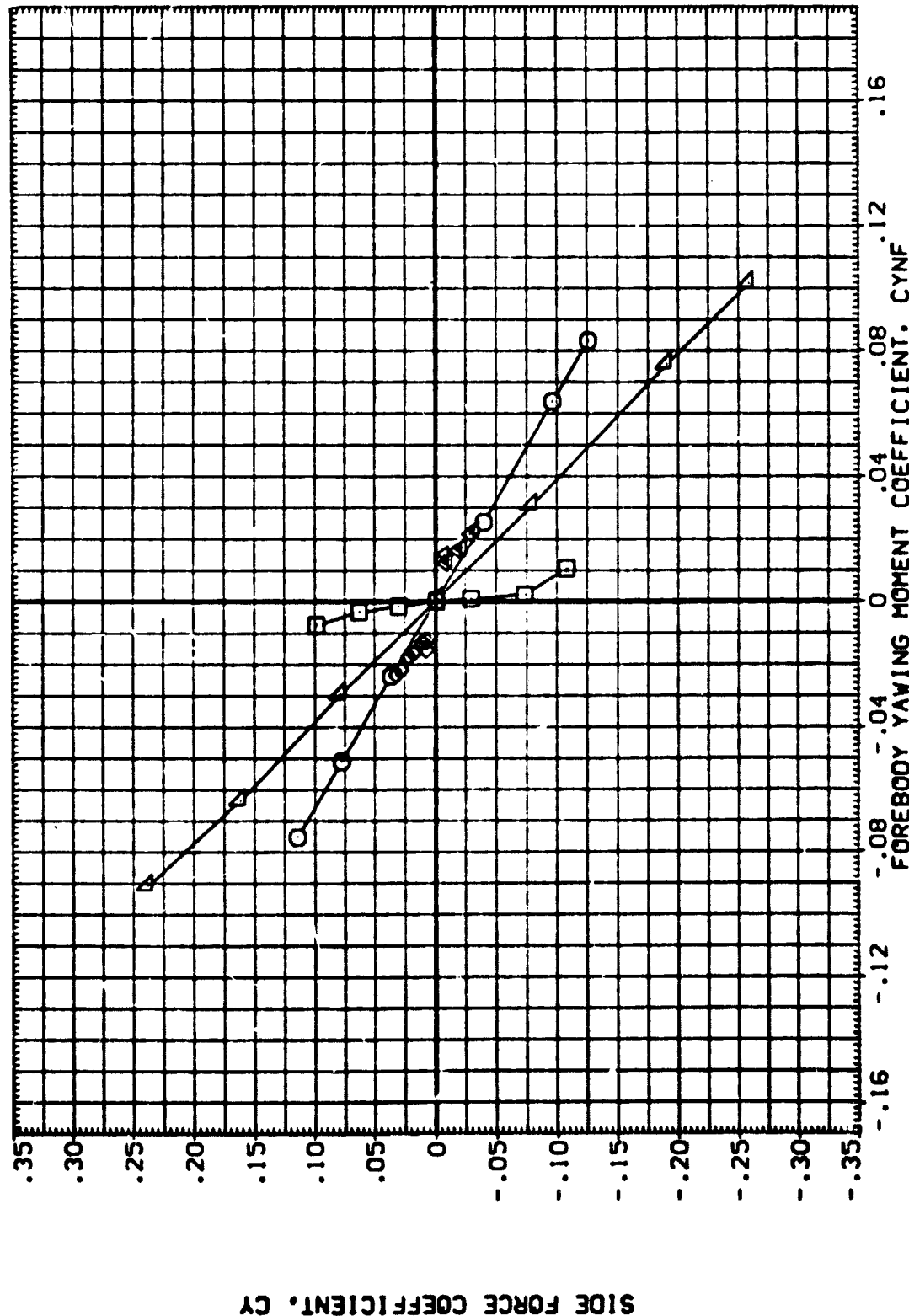


FIG. 23 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0

(D)ALPHA= .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(LETR44)	APES97-0191(AB1) LVAP ORBITER-ALL ML SEALED	8.000	.000	2.000	.000	SREF 2630.0000 SQ.FT.
(LETR44)	APES97-0191(AB1) LVAP TANK - ALL ML SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(LETR44)	APES97-0191(AB1) LVAP L-SRB - ALL ML SEALED	8.000	.000	2.000	.000	BREF 1297.0000 IN.
(LETR44)	APES97-0191(AB1) LVAP R-LRB - ALL ML SEALED	8.000	.000	2.000	.000	APRP 376.0000 IN.
(LETR44)	APES97-0191(AB1) LVAP INT VEH ALL ML SEALED	8.000	.000	2.000	.000	VRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

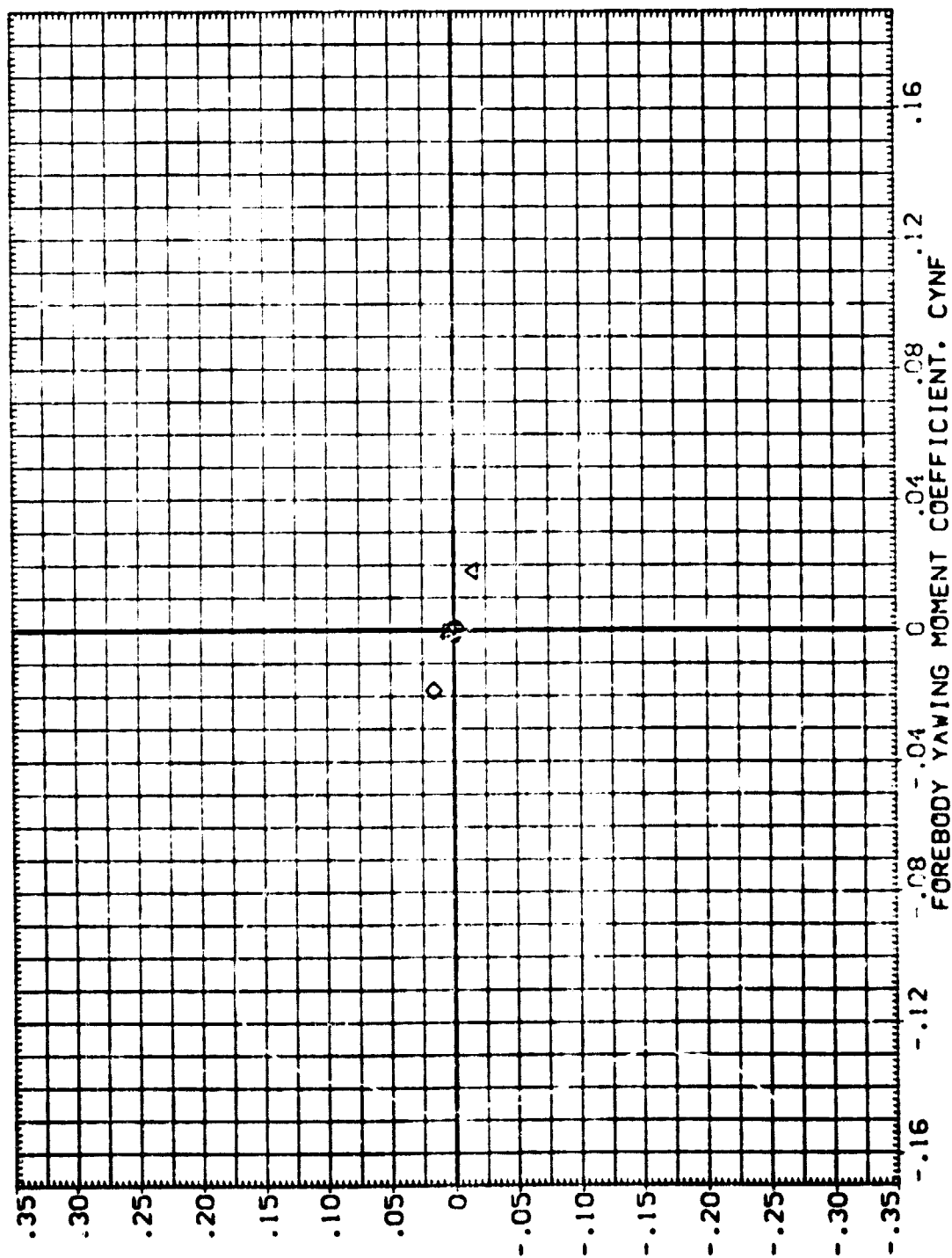


FIG. 23 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS. M=2.0 DEV=8/0
(E)ALPHA= 2.00

DATA SET SYMOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(LE1044)	AME597-019(IAB1) LVAP	8.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LE1144)	AME597-019(IAB1) LVAP	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(LE1244)	AME597-019(IAB1) LVAP	8.000	.000	2.000	.000	BREF 1297.0000 IN.
(LE1344)	AME597-019(IAB1) LVAP	8.000	.000	2.000	.000	XMRP 976.0000 IN.
(LE1444)	AME597-019(IAB1) LVAP	8.000	.000	2.000	.000	YMRP 400.0000 IN.
(LE1544)	AME597-019(IAB1) LVAP	8.000	.000	2.000	.000	ZMRP 400.0000 IN.
(LE1644)	AME597-019(IAB1) LVAP	8.000	.000	2.000	.000	SCALE .0300

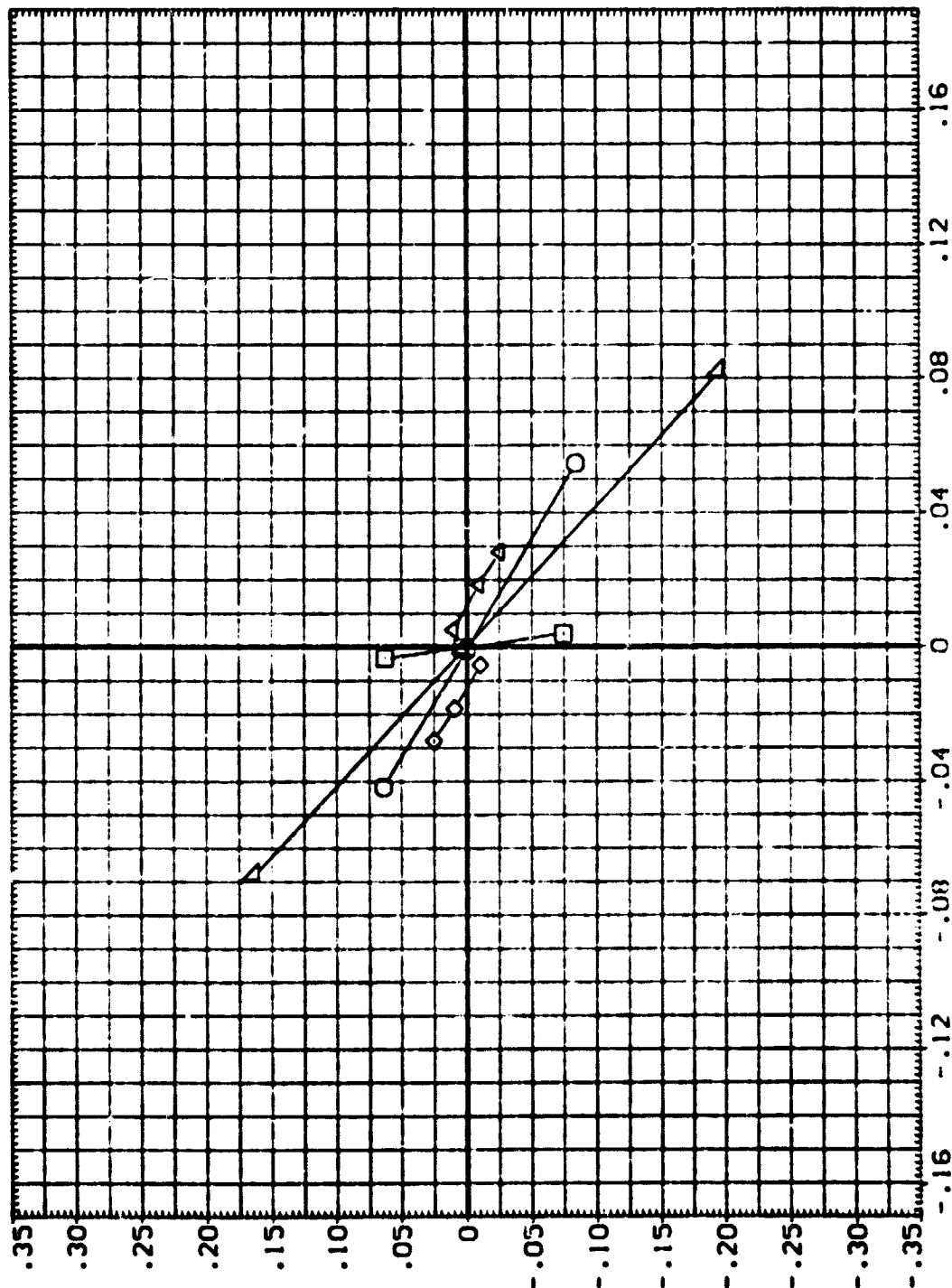


FIG. 23 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0
(F)ALPHA= 4.00

DATA SET SYMBOL: (LE1044) (LE1144) (LE1244) (LE1344) (LE144)

CONFIGURATION DESCRIPTION: AMES97-019(IAB1) LV P CRBITER-ALL ML SEALED
 AMES97-019(IAB1) LVAP L-SRB - ALL ML SEALED
 AMES97-019(IAB1) LVAP R-LRB - ALL ML SEALED
 AMES97-019(IAB1) LVAP INT VEM ALL ML SEALED

ELV-18: 8.000 8.000 8.000 8.000

ELV-08: .000 .000 .000 .000

MACH: 2.000 2.000 2.000 2.000

SPDBRK: .000 .000 .000 .000

REFERENCE INFORMATION: SREF 2690.0000 SO.FT. IN.
 LREF 1297.0000 IN.
 BREF 1297.0000 IN. XT
 XMRP 976.0000 IN. YT
 YMRP .0000 IN. ZT
 ZMRP 400.0000 IN. ZT
 SCALE .0300

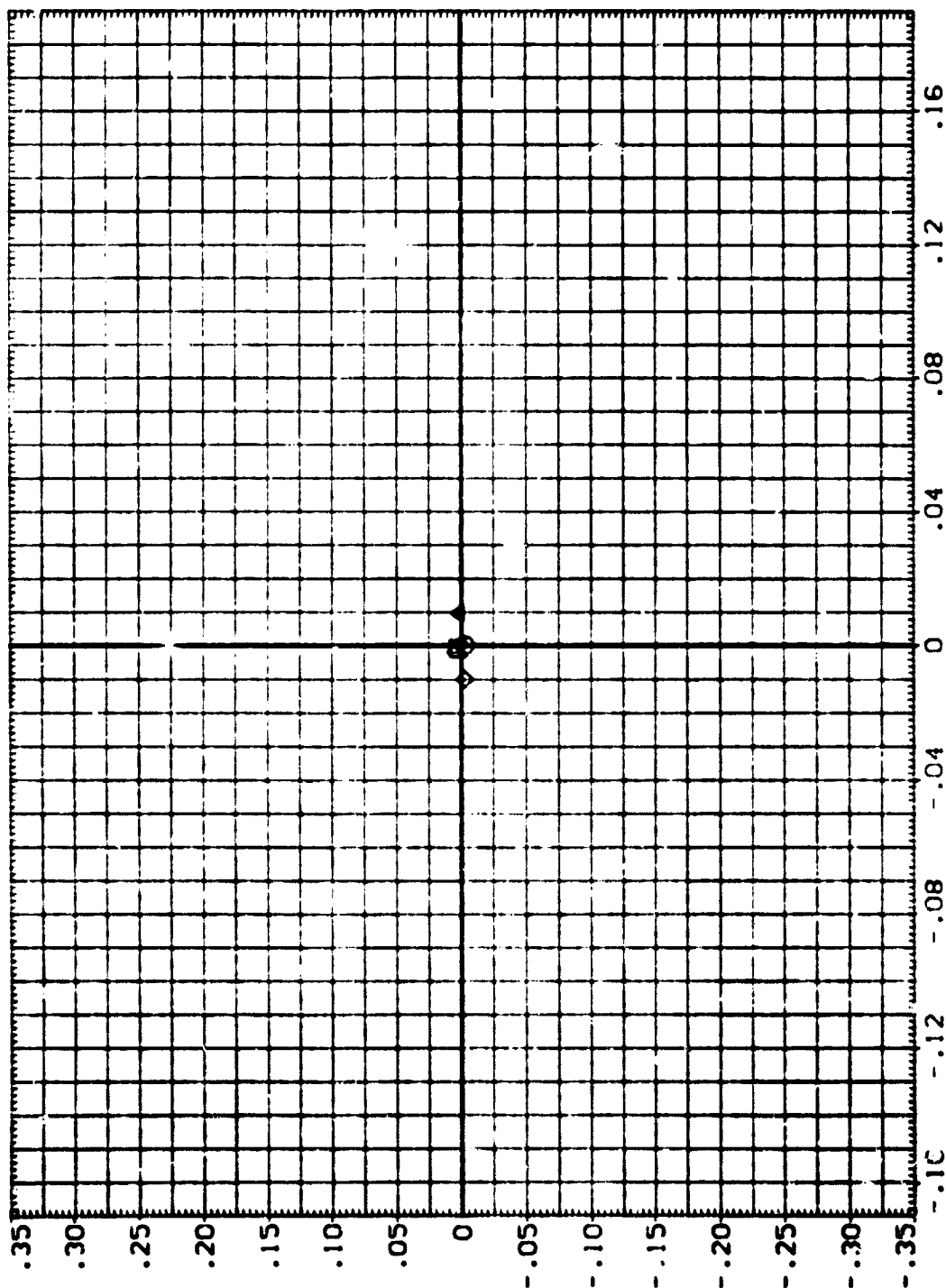


FIG. 23 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=2.0$ $DEV=8/0$
 (G)ALPHA1= 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDBRK	REFERENCE INFORMATION			
(LETO44)	AMES97-019(IA81) LVAP ORBITER-ALL ML SEALED	8.000	.000	2.000	.000	SREF	2690.0000	SO.FT.	
(LETT44)	AMES97-019(IA81) LVAP TANK - ALL ML SEALED	8.000	.000	2.000	.000	UREF	1297.0000	IN.	
(LETL44)	AMES97-019(IA81) LVAP L-SRB - ALL ML SEALED	8.000	.000	2.000	.000	BREF	1297.0000	IN.	XT
(LETR44)	AMES97-019(IA81) LVAP R-LRB - ALL ML SEALED	8.000	.000	2.000	.000	XMRP	976.0000	IN.	XT
(LETI44)	AMES97-019(IA81) LVAP INT VEH ALL ML SEALED	8.000	.000	2.000	.000	YMRP	400.0000	IN.	ZT
						ZMRP	400.0000	IN.	ZT
						SCALE	.0300		

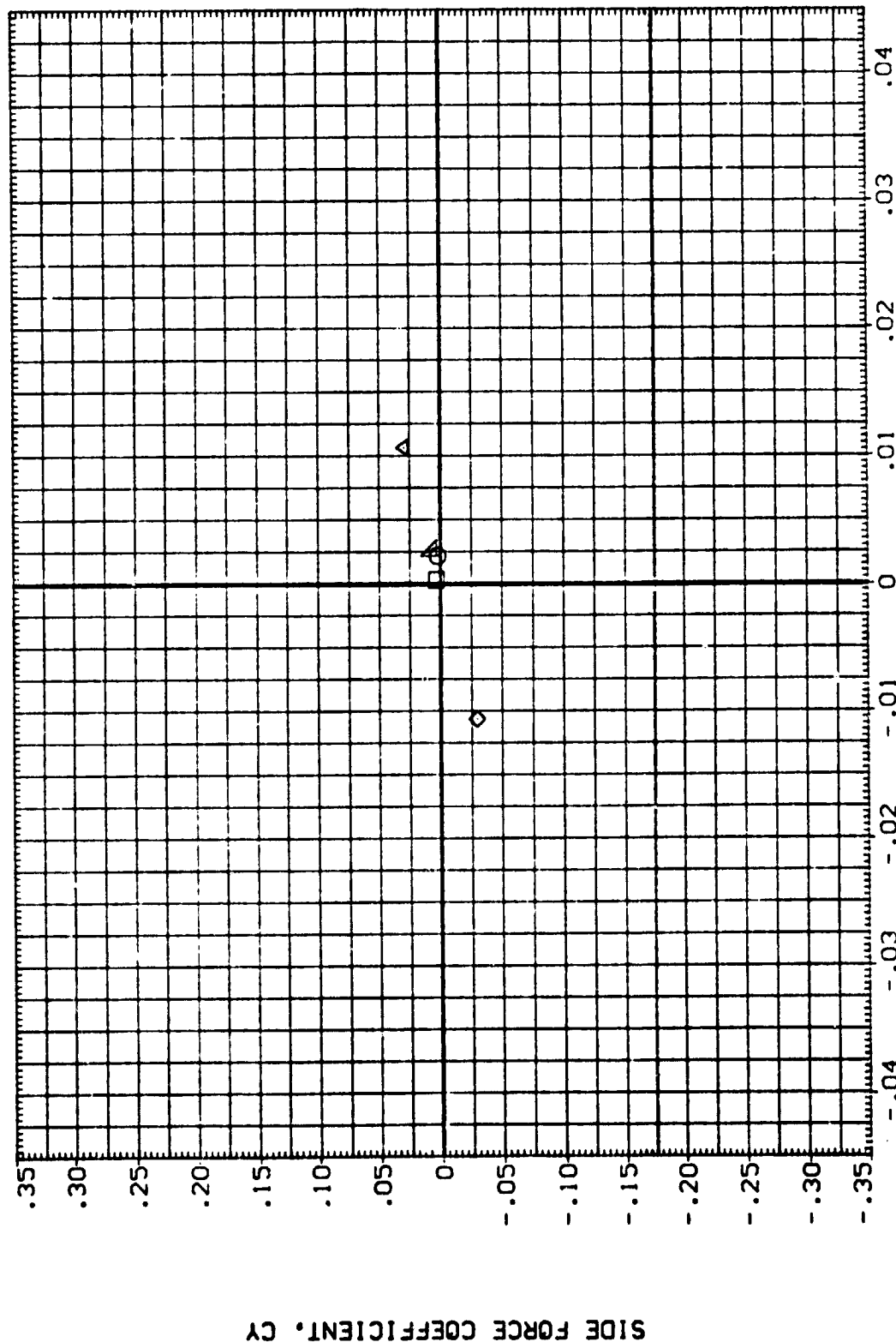


FIG. 23 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0
(A) ALPHA = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-19	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(LET044)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LET144)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(LET144)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.000	.000	BREF 1297.0000 IN.
(LET144)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	.000	2.000	.000	YMRP 976.0000 IN.
(LET144)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.000	.000	YMRP 976.0000 IN.
(LET144)						ZMRP 400.0000 IN.
						SCALE .0300

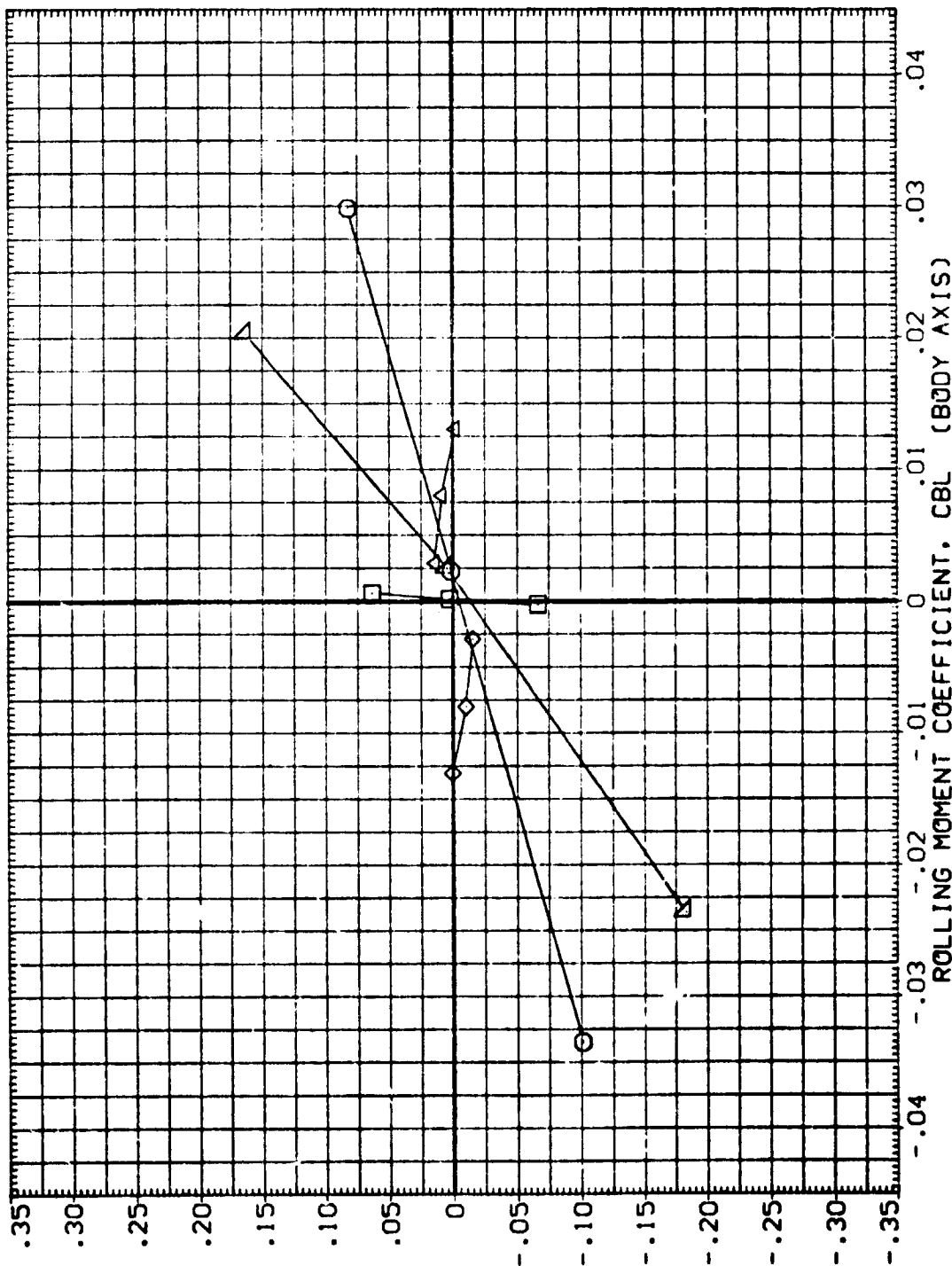


FIG. 23 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0
(B) ALPHA = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LE1044)	AMES97-0191(A81) LVAP ORBITER-ALL HL SEALED	8.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LE1144)	AMES97-0191(A81) LVAP TANK - ALL HL SEALED	8.000	.000	2.000	.000	UREF 1297.0000 IN.
(LE1244)	AMES97-0191(A81) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.000	.000	SREF 1297.0000 IN.
(LE1344)	AMES97-0191(A81) LVAP R-LPR ALL HL SEALED	8.000	.000	2.000	.000	YMRP 976.0000 IN. XT
(LE1444)	AMES97-0191(A81) LVAP INT VEH ALL HL SEALED	8.000	.000	2.000	.000	YMRP 400.0000 IN. YT
(LE1544)						ZMRP 400.0000 IN. ZT
						SCALE .0300

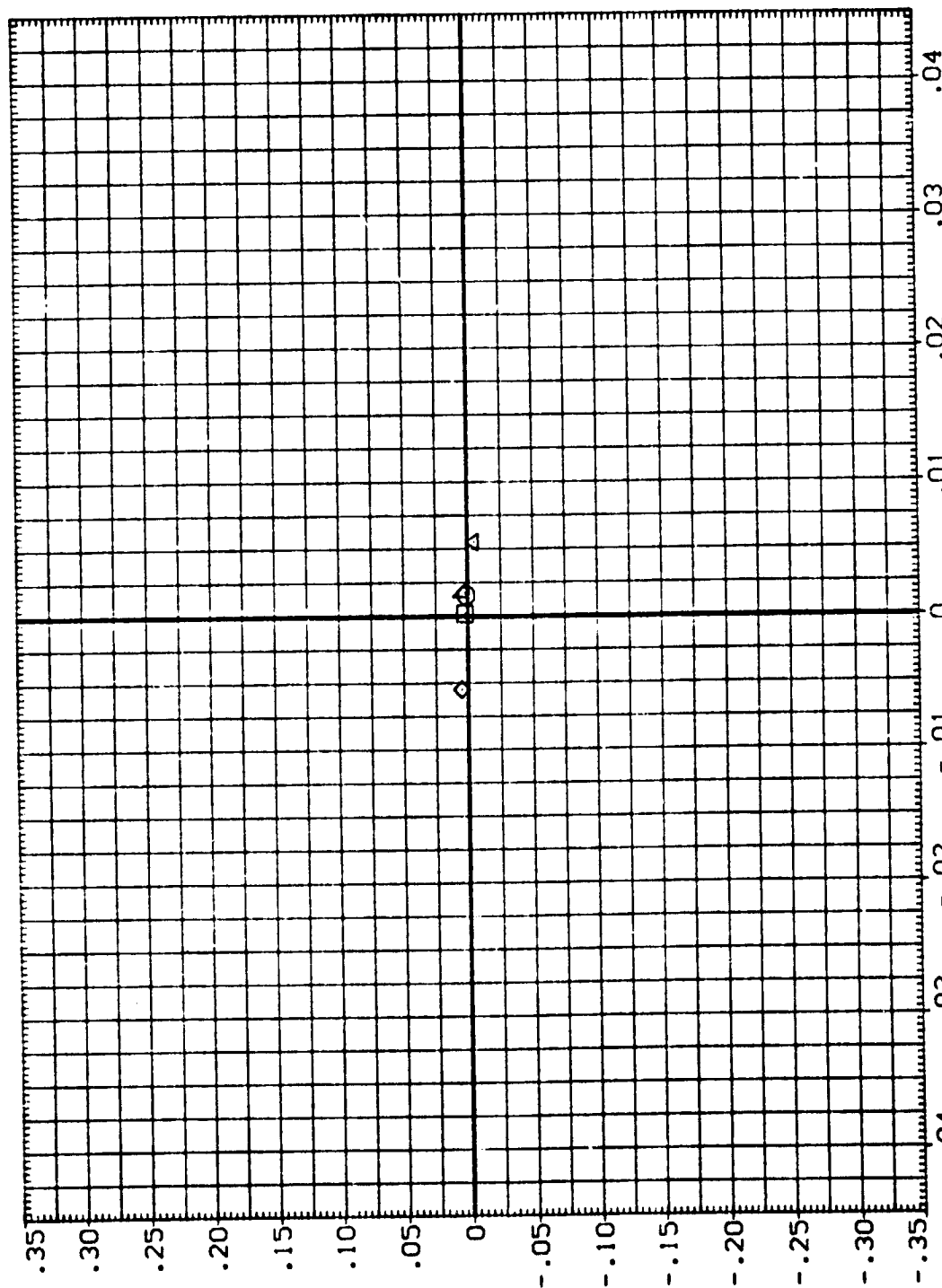


FIG. 23 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0
(C)ALPHA= -2.00 PAGE 553

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDRK	REFERENCE INFORMATION
(LETO44)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	.000	2.000	.000	SREF 2690.2000 SQ.FT.
(LETT44)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.000	.000	LPEF 1297.0000 IN.
(LETL44)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.000	.000	SREF 1267.0000 IN.
(LETR44)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	.000	2.000	.000	XMRP 576.0000 IN.
(LETI44)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.000	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

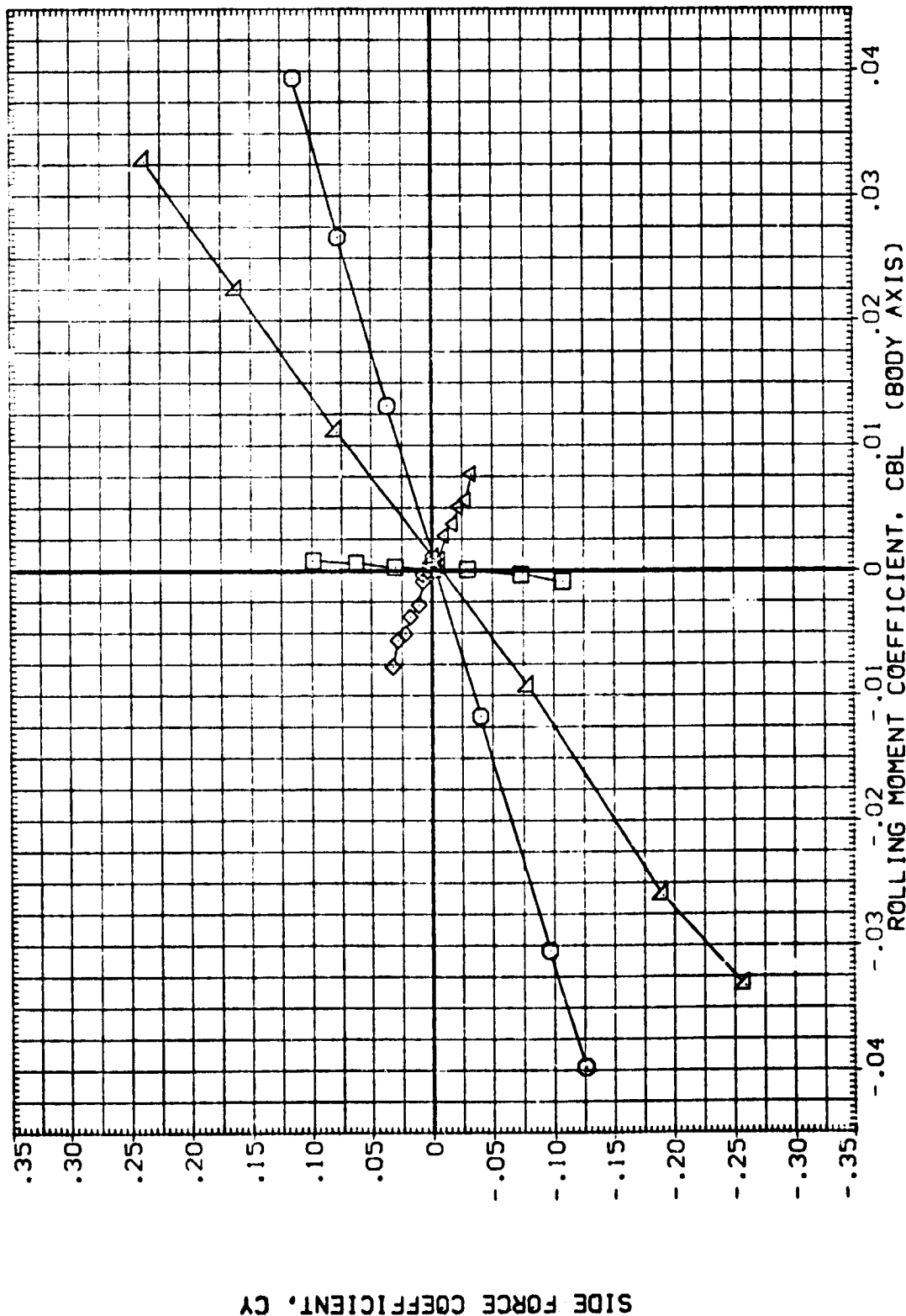


FIG. 23 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0
(D)ALPHA= .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPOBRK	REFERENCE INFORMATION
(LETO44)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LETT44)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(LETL44)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.000	.000	BREF 1297.0000 IN.
(LETR44)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	.000	2.000	.000	XMRP 976.0000 IN.
(LETI44)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.000	.000	YMRP .0000 IN.
						ZMRP .0000 IN.
						SCALE 400.0000 IN.
						SCALE .0300

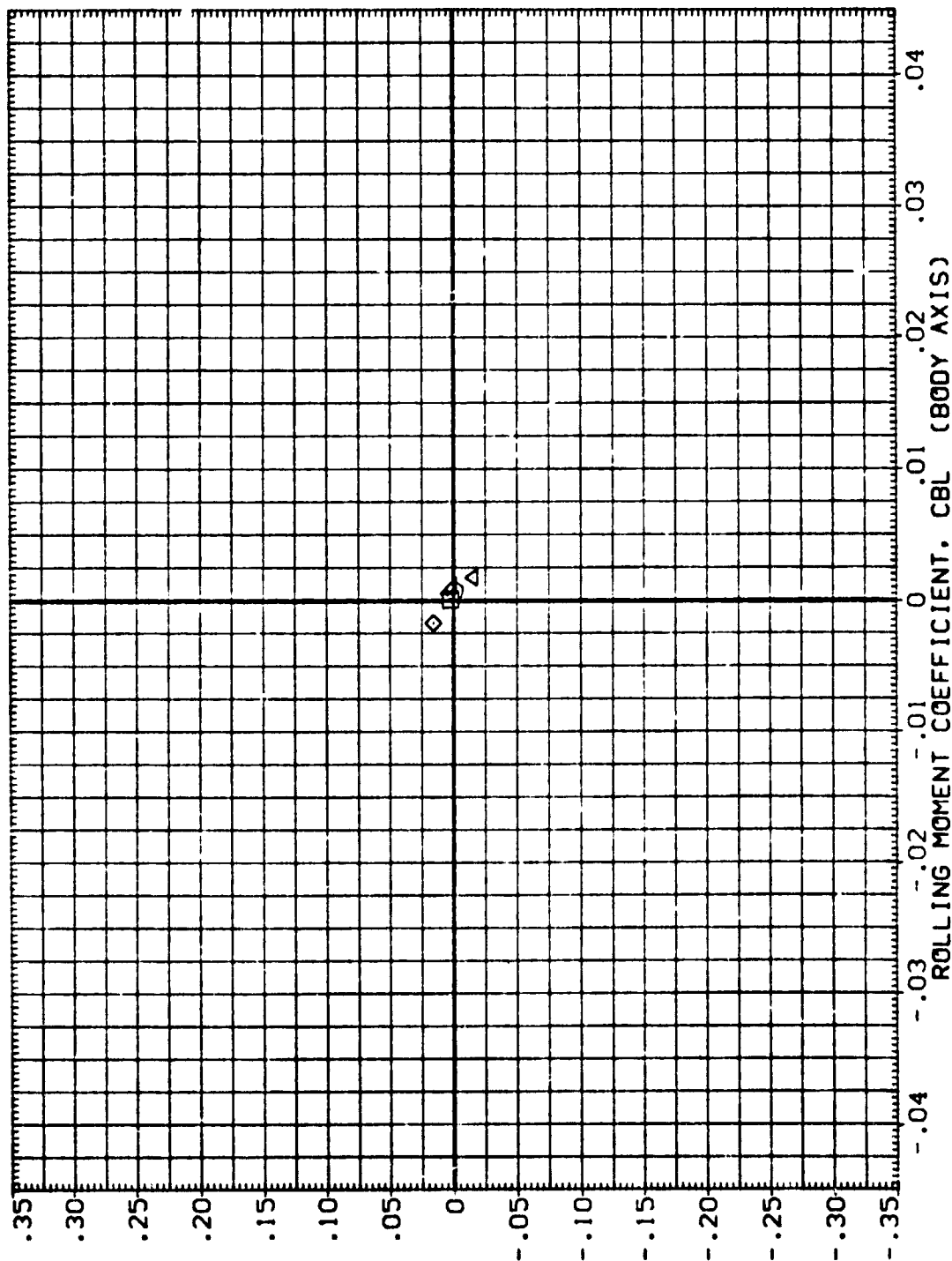


FIG. 23 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0

(E)ALPHA= 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LETO44)	AMES97-019(IAB1) LVAP ORBITTER-ALL HL SEALED	8.000	.000	2.000	.000	SREF 2690.0000 SO.FT.
(LETT44)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(LETL44)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.000	.000	PRF 1297.0000 IN. XT
(LETR44)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	.000	2.000	.000	YMRP 976.0000 IN. YT
(LETT44)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.000	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

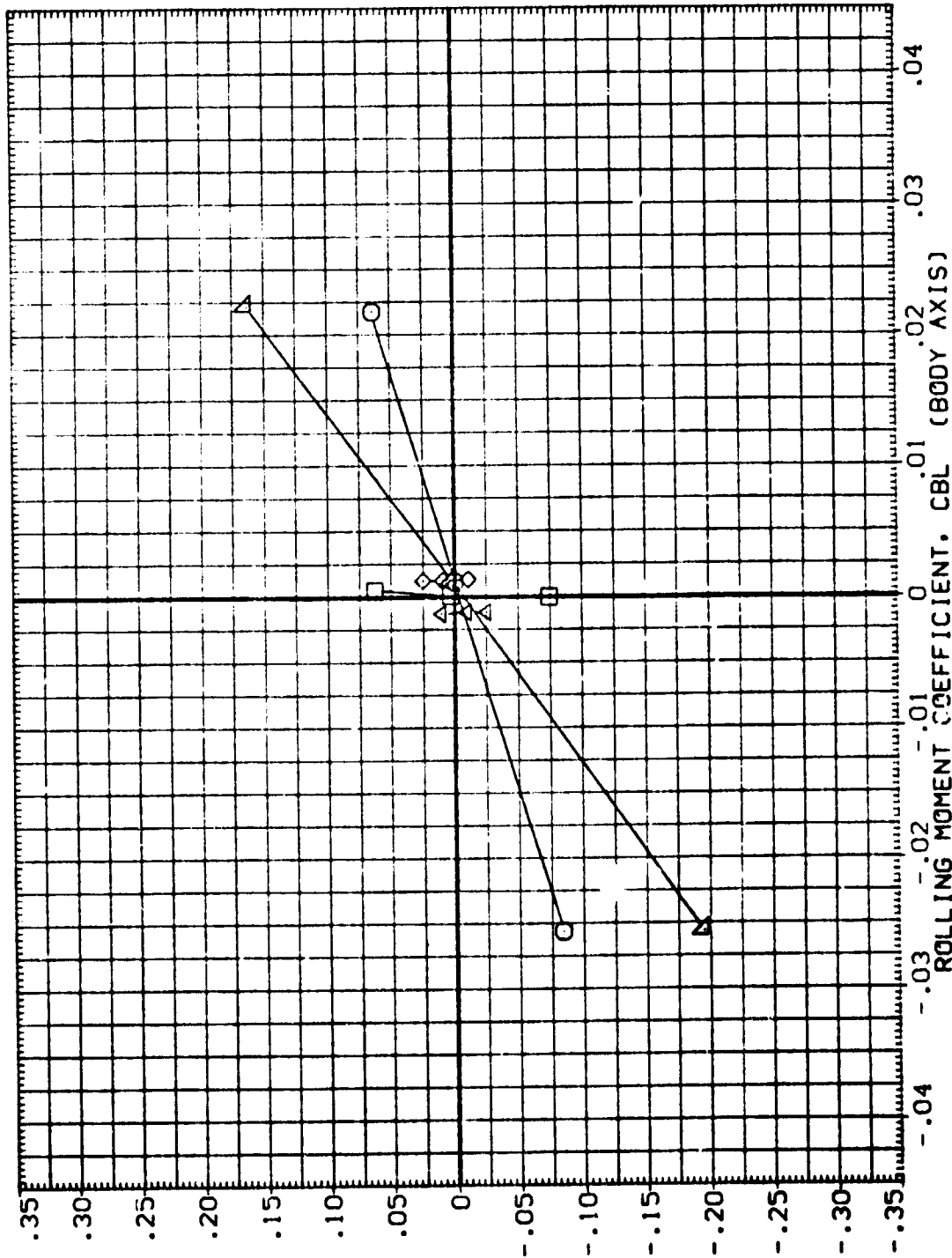


FIG. 23 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0
(F)ALPHA= 4.00 PAGE 556

REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(LETO44)	Q	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	.000	2.000	.000	SRET 2690.0000 SQ.FT.
(LETT44)	X	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(LETL44)		AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.000	.000	BREF 1297.0000 IN.
(LETR44)		AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	.000	2.000	.000	XMRP 976.0000 IN. XT
(LETT44)		AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.000	.000	ZMRP .0000 IN. YT
							SCALE 400.0000 IN. ZT

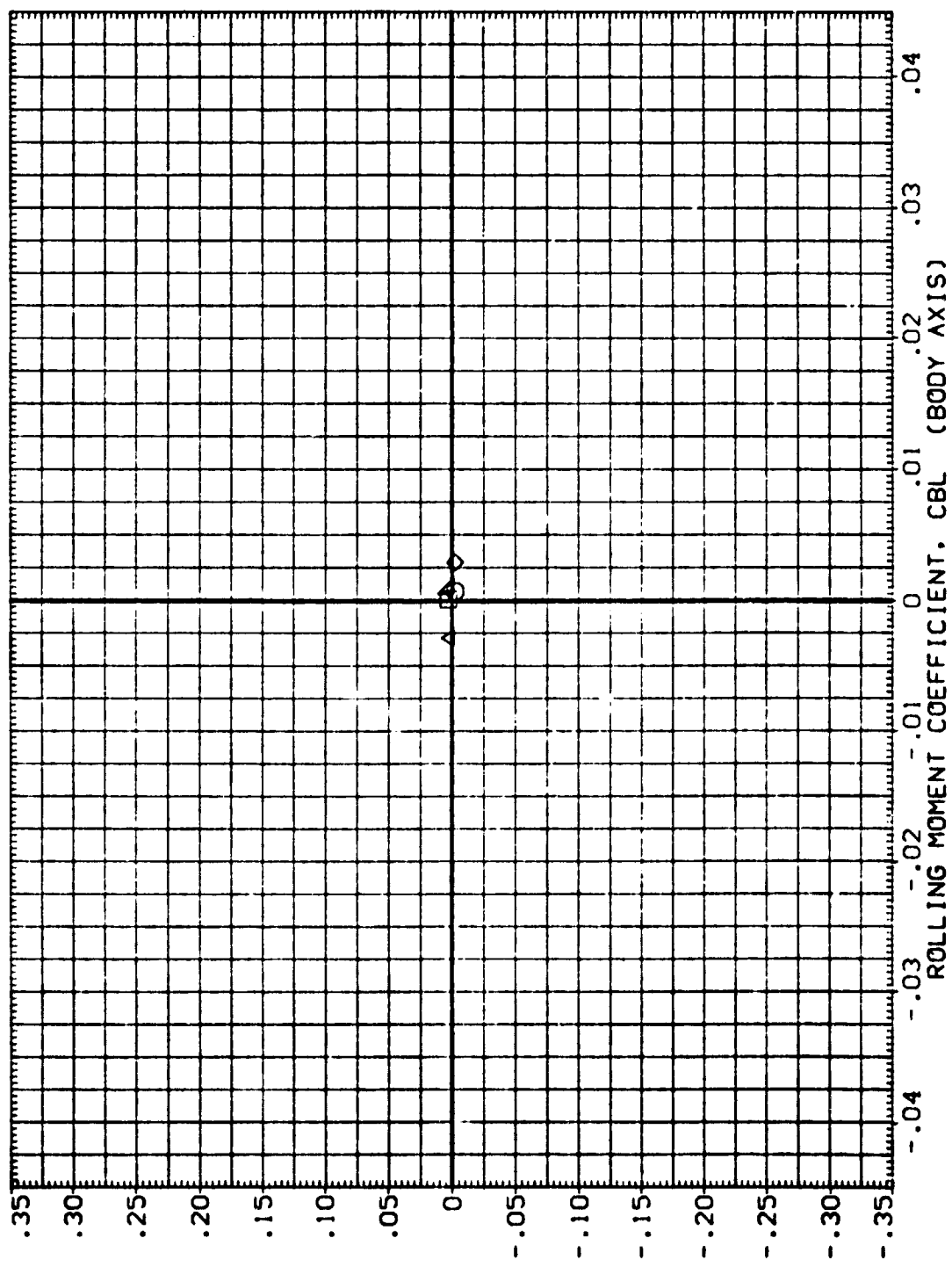


FIG. 23 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=8/0
(G)ALPHA= 6.00 PAGE 557

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-CB	MACH	SPDRK	REFERENCE INFORMATION
(LE1047)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SCALED	10.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LE1147)	AMES97-019(IAB1) LVAP TANK - ALL HL SCALED	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LE147)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SCALED	10.000	-4.000	2.000	.000	RREF 1297.0000 IN.
(LE147)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SCALED	10.000	-4.000	2.000	.000	XREF 976.0000 IN.
(LE147)	AMES97-019(IAB1) LVAP 1ST VEH - ALL HL SCALED	10.000	-4.000	2.000	.000	YREF 400.0000 IN.
						ZREF .0300 SCALE

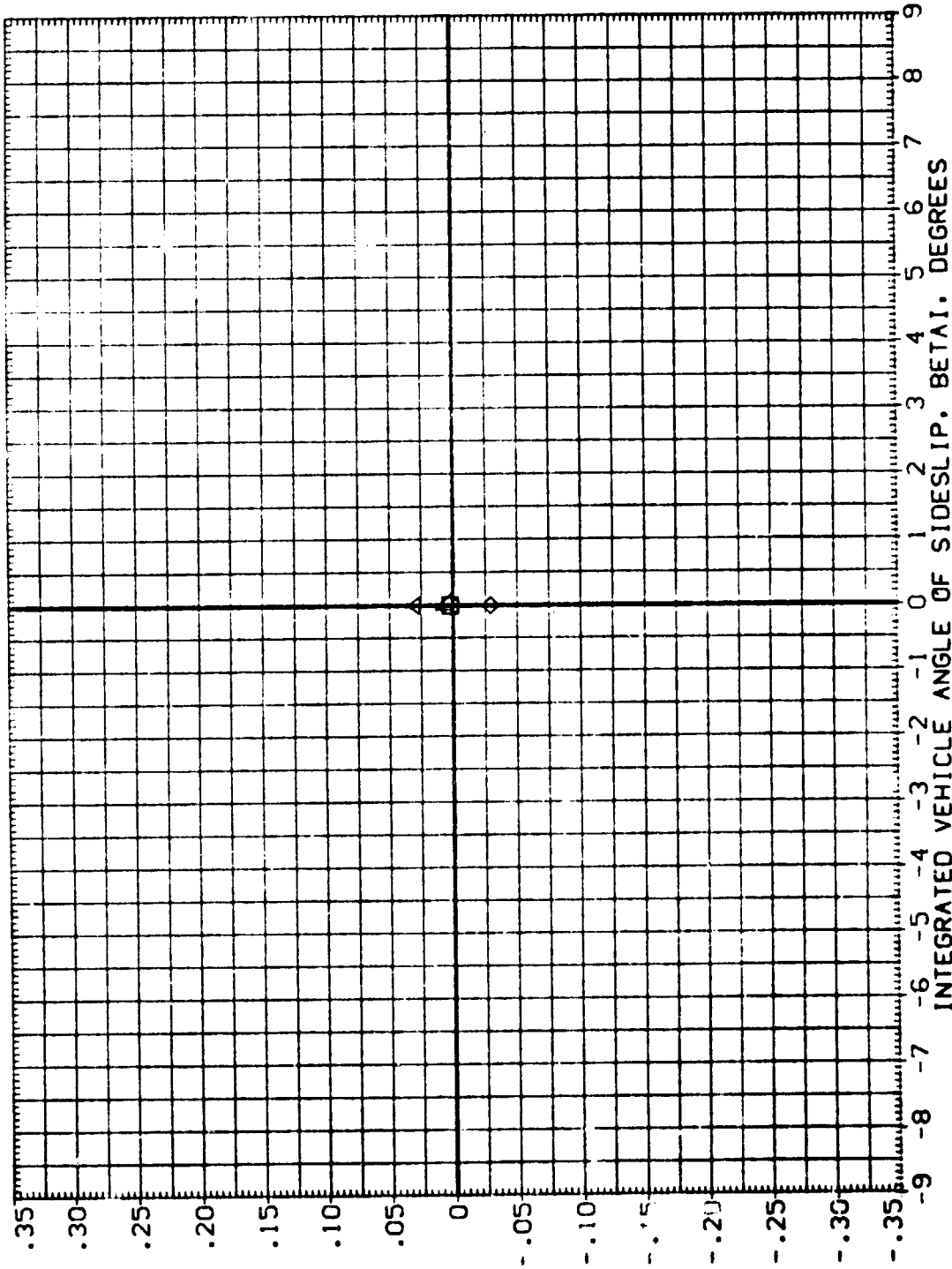


FIG. 24 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4
(A) ALPHA1= -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LE1047)	AMES97-019(IAB1) LVAP CRBITER-ALL ML SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000 SO.FT.
(LE1147)	AMES97-019(IAB1) LVAP TANK - ALL ML SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LE1247)	AMES97-019(IAB1) LVAP L-SFB - ALL ML SEALED	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LE1347)	AMES97-019(IAB1) LVAP R-LRB ALL ML SEALED	10.000	-4.000	2.000	.000	YMRP 976.0000 IN.
(LE1447)	AMES97-019(IAB1) LVAP INT VEH ALL ML SEALED	10.000	-4.000	2.000	.000	ZMRP 400.0000 IN.
						SCALE .0300

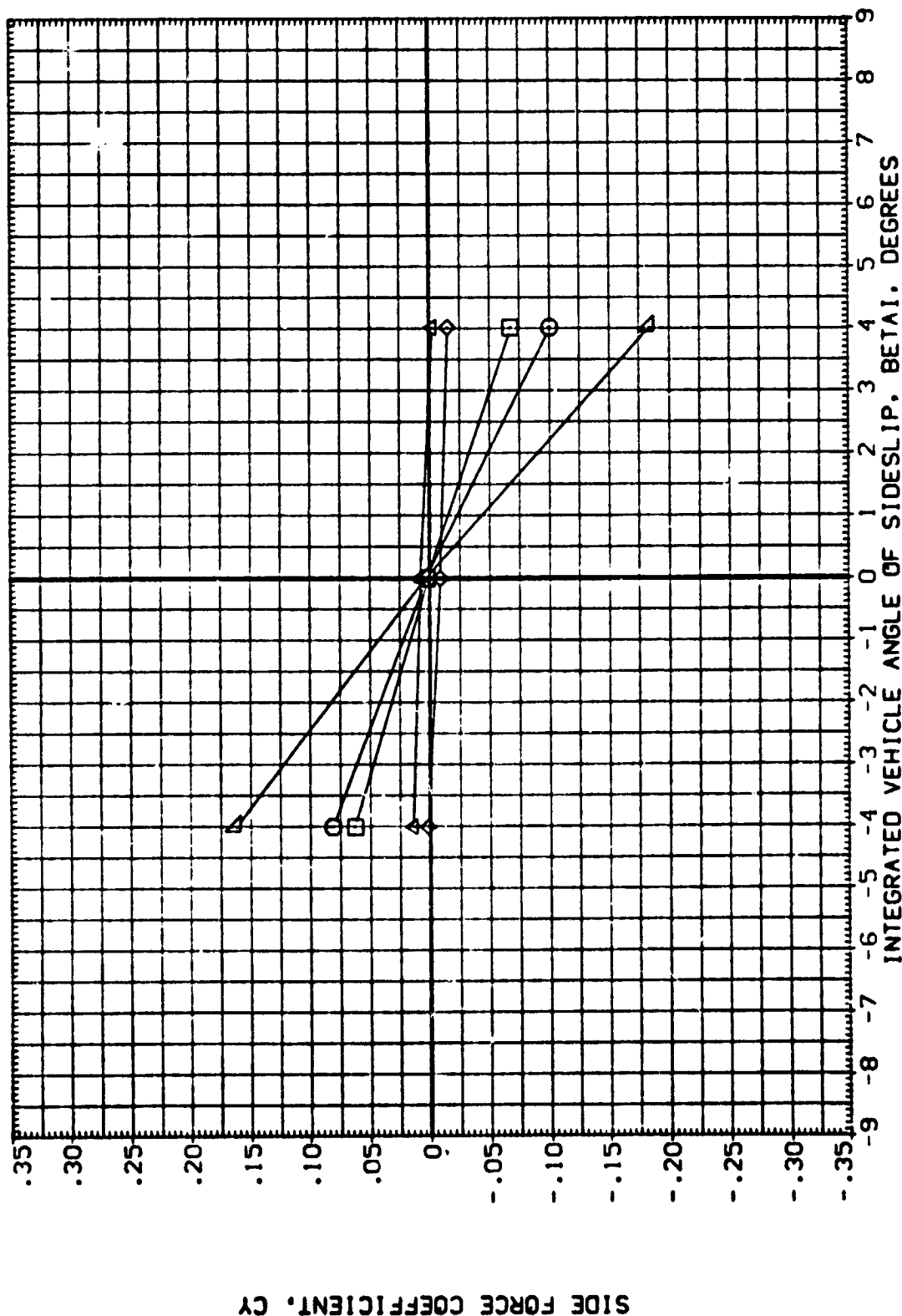


FIG. 24 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=2.0$ $DEV=10/-4$
 (B) $\alpha=1$ -4.00 PAGE 559

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	HALH	SPCBK	REFERENCE INFORMATION	SO.FT.
(LET047)	AMES97-019(IAB1) LVAP CRB1TER-ALL HL SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000	IN.
(LET147)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000	IN.
(LET147)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	2.000	.000	BREF 1297.0000	IN.
(LET147)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	10.000	-4.000	2.000	.000	XMRP 275.0000	IN.
(LET147)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	10.000	-4.000	2.000	.000	YMRP .0000	IN.
						ZMRP 400.0000	IN.
						SCALE .0000	

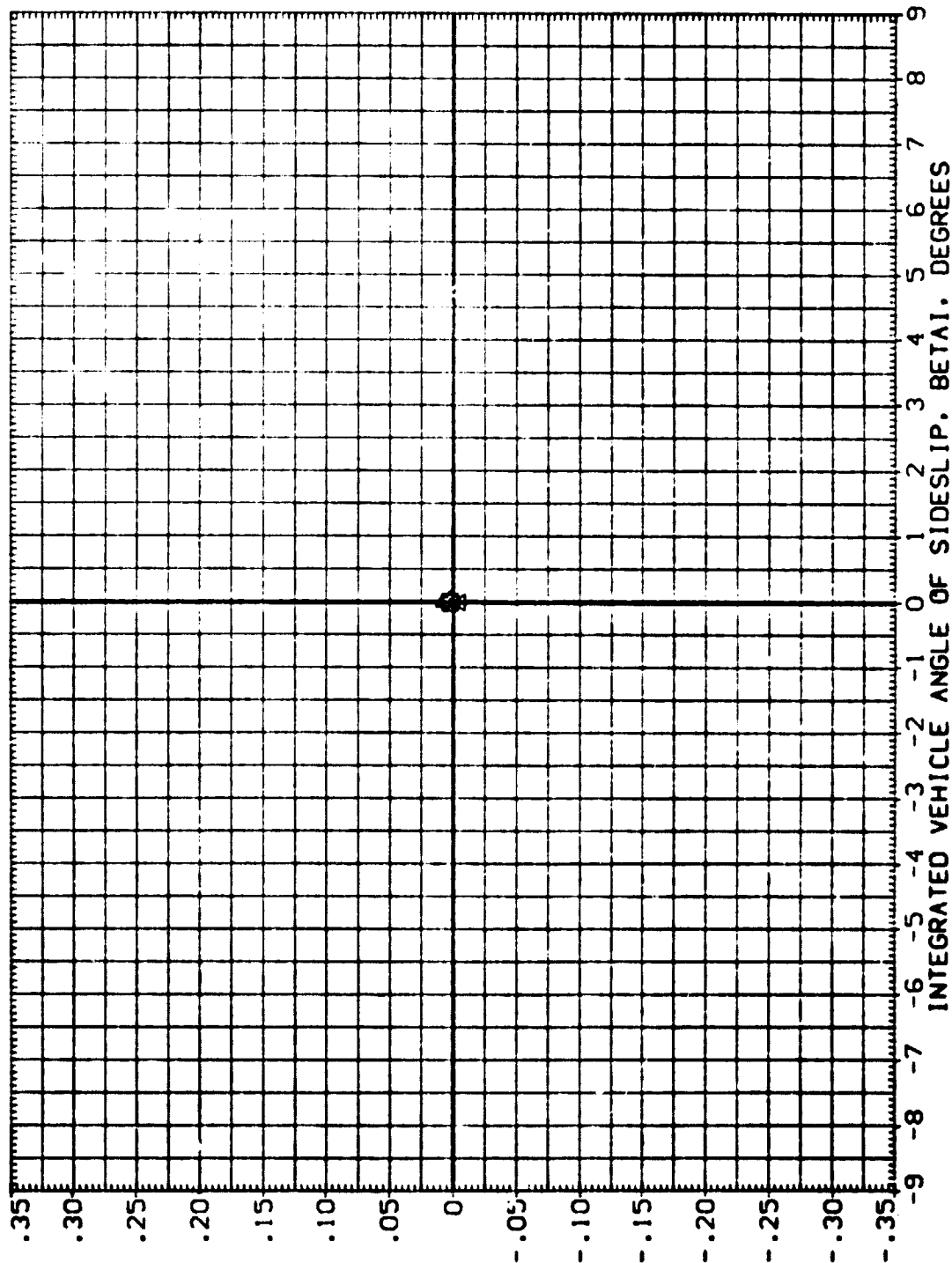


FIG. 24 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4
(C)ALPHA= -2.00

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ORIGINAL PAGE IS POOR

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-D8	MACH	SPOBRK	REFERENCE INFORMATION
(LE1047)	ANE597-019(1A81) LVAP ORBITER-ALL ML SEALED	10.000	-4.000	2.000	.000	2690.0000 SQ.FT.
(LE1147)	ANE597-019(1A81) LVAP TANK - ALL ML SEALED	10.000	-4.000	2.000	.000	1297.0000 IN.
(LE1247)	ANE597-019(1A81) LVAP L-SPB - ALL ML SEALED	10.000	-4.000	2.000	.000	1297.0000 IN.
(LE1347)	ANE597-019(1A81) LVAP R-LRB ALL ML SEALED	10.000	-4.000	2.000	.000	976.0000 IN. XT
(LE1447)	ANE597-019(1A81) LVAP INT VEW ALL ML SEALED	10.000	-4.000	2.000	.000	400.0000 IN. ZT
						SCALE .0300

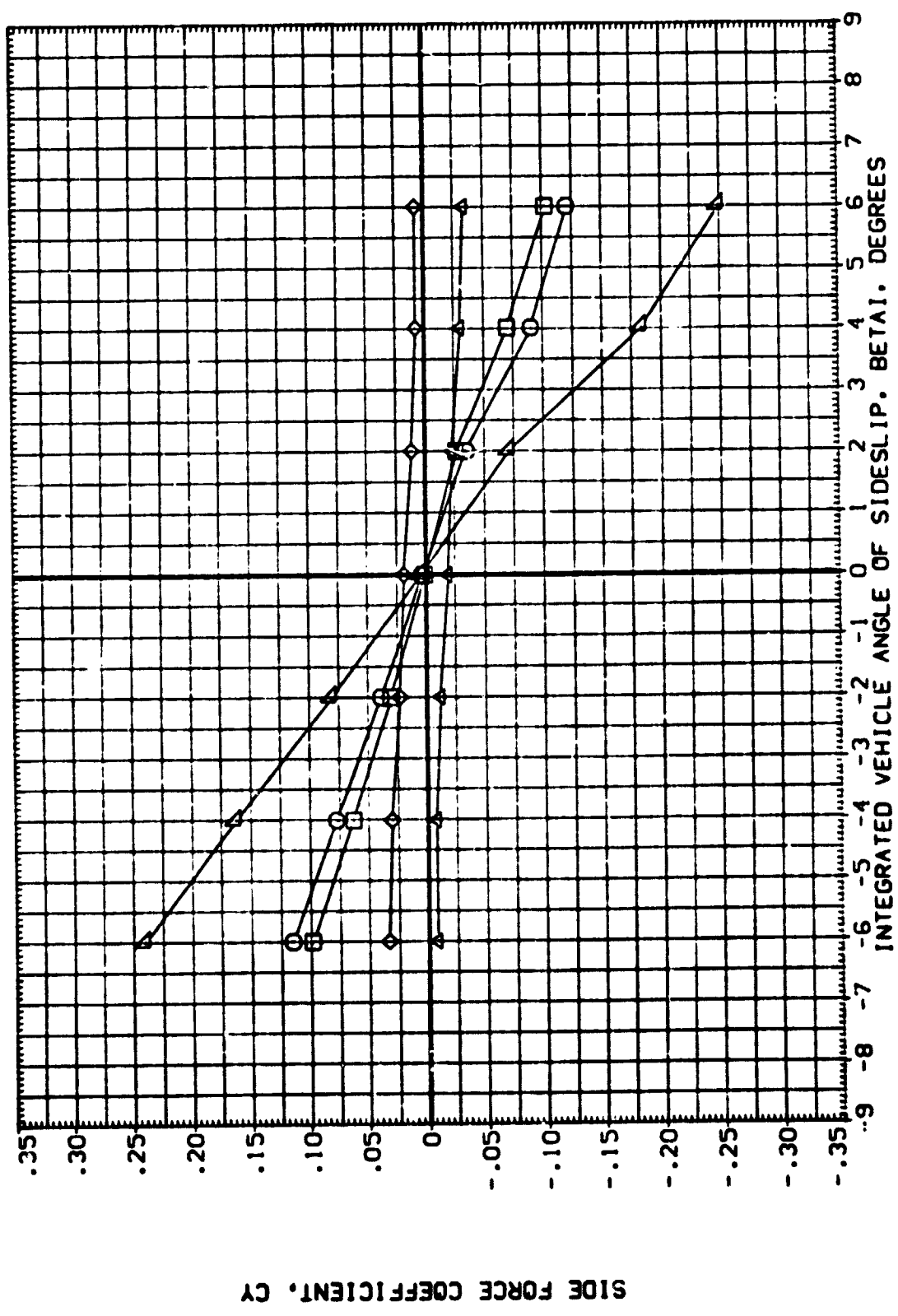


FIG. 24 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4
(O)ALPHA= .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(LETR47)	AMES97-019(1A81) LVAP ORBITER-ALL ML SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LETR47)	AMES97-019(1A81) LVAP TANK	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LETR47)	AMES97-019(1A81) LVAP L-SRB	10.000	-4.000	2.000	.000	EREF 1297.0000 IN.
(LETR47)	AMES97-019(1A81) LVAP R-LRB	10.000	-4.000	2.000	.000	XSRP 376.0000 IN.
(LETR47)	AMES97-019(1A81) LVAP 1,2,3 VEM ALL ML SEALED	10.000	-4.000	2.000	.000	ZHRP 400.0000 IN.
						SCALE .0300

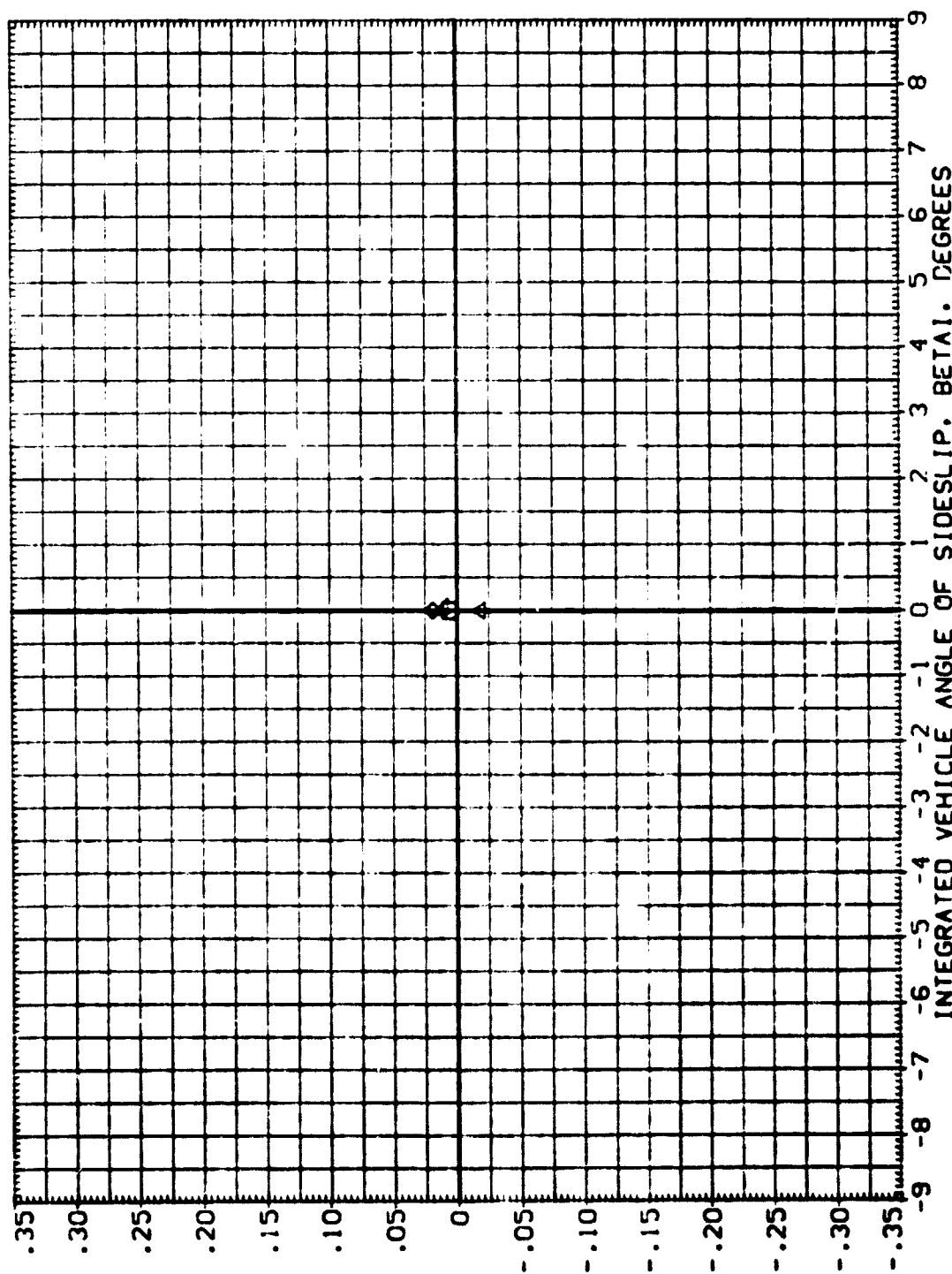


FIG. 24 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4
(E)ALPHA= 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBOK	REFERENCE INFORMATION
(LE1047)	AME597-0191(AB1) LVAP ORBITER-ALL M SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LE1147)	AME597-0191(AB1) LVAP TANK - ALL M SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LE1247)	AME597-0191(AB1) LVAP L-SRB - ALL M SEALED	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LE1347)	AME597-0191(AB1) LVAP R-LRB - ALL M SEALED	10.000	-4.000	2.000	.000	MREF 576.0000 IN. XT
(LE1447)	AME597-0191(AB1) LVAP INT VEH ALL M SEALED	10.000	-4.000	2.000	.000	YMRP 400.0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

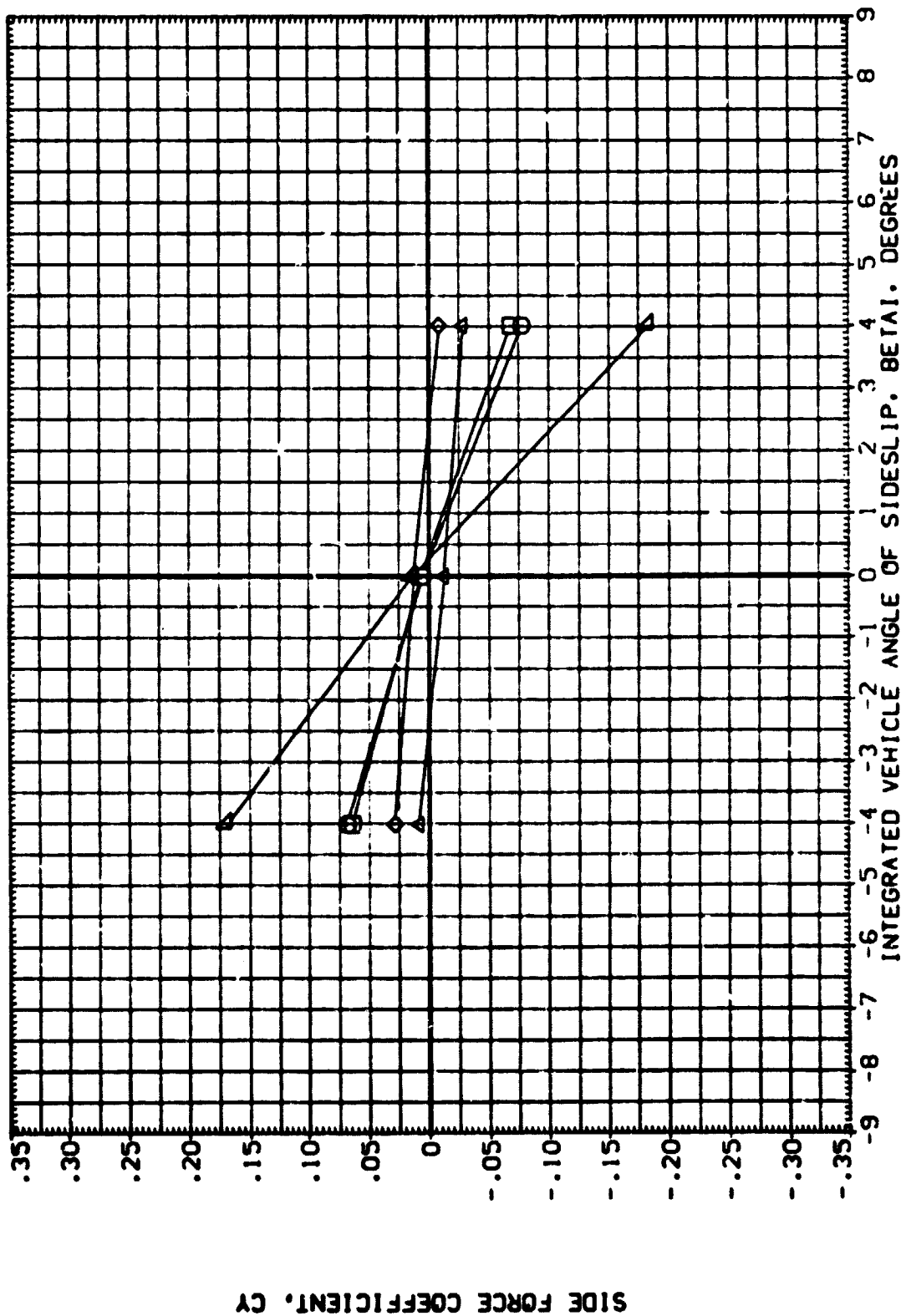


FIG. 24 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS. $M=2.0$ $DEV=10/-4$

(F) ALPHA = 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDRK	REFERENCE INFORMATION
(LET047)	AMES87-019(IAB1) LVAP ORBITER-ALL ML SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000 SO-PT.
(LET147)	AMES87-019(IAB1) LVAP TANK - ALL ML SEALED	10.000	-4.000	2.000	.000	LRFF 1297.0000 IN.
(LET147)	AMES87-019(IAB1) LVAP L-SPB - ALL ML SEALED	10.000	-4.000	2.000	.000	BRFF 1297.0000 IN.
(LET147)	AMES87-019(IAB1) LVAP R-LRB - ALL ML SEALED	10.000	-4.000	2.000	.000	XMRP 978.0000 N. XT
(LET147)	AMES87-019(IAB1) LVAP INT VEM ALL ML SEALED	10.000	-4.000	2.000	.000	ZMRP 450.0000 N. YT
						SCALE .0300

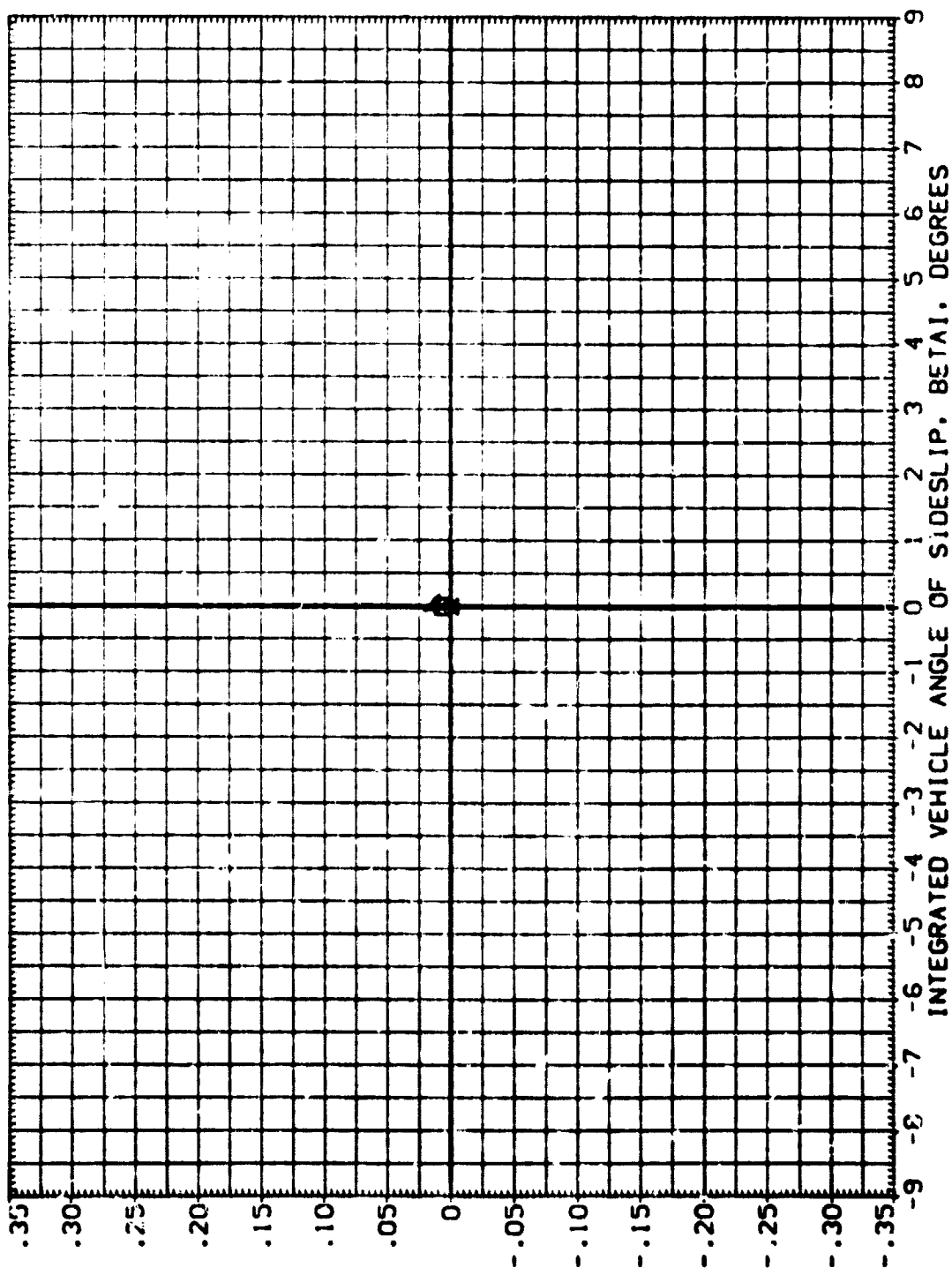


FIG. 24 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4
(S)ALPHA= 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDBRK	REFERENCE INFORMATION
(LE1047)	AMES97-019(IAB1) LVAP ORBITTER-ALL HL SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LE1147)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LE1247)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LE1347)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	10.000	-4.000	2.000	.000	XMRP 976.0000 IN. XT
(LE1447)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	10.000	-4.000	2.000	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

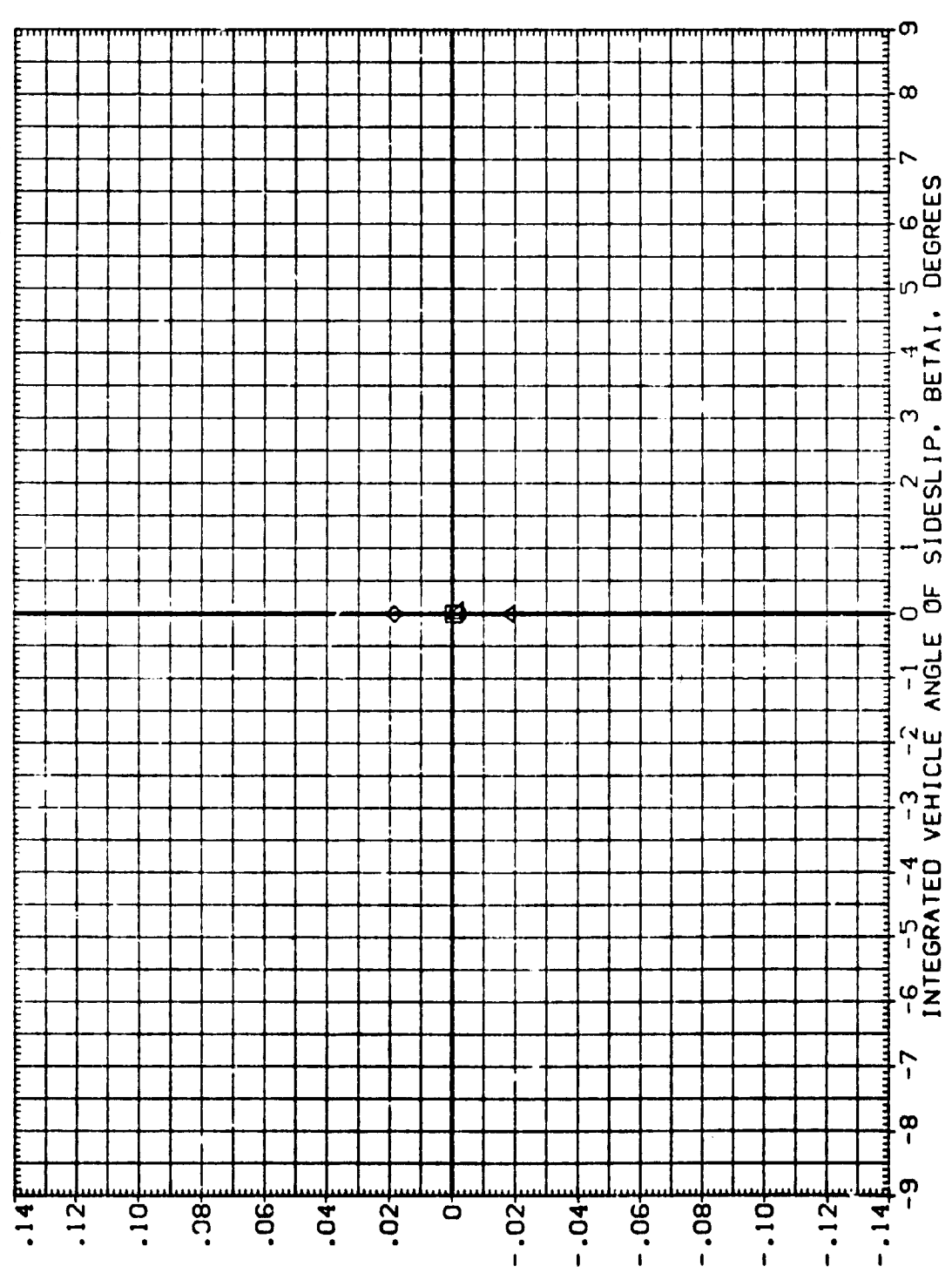


FIG. 24 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4
(ALPHA) = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDRK	REFERENCE INFORMATION
(LET047)	AMES97-019(IA81) LVAP GR31TER-ALL HL SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LET147)	AMES97-019(IA81) LVAP TANK - ALL HL SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LET147)	AMES97-019(IA81) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LET147)	AMES97-019(IA81) LVAP R-LRB - ALL HL SEALED	10.000	-4.000	2.000	.000	XHRP 976.0000 IN.
(LET147)	AMES97-019(IA81) LVAP INT VEH ALL HL SEALED	10.000	-4.000	2.000	.000	ZHRP 490.0000 IN.
						SCALE .0300

FOREBODY YAWING MOMENT COEFFICIENT, CYNF

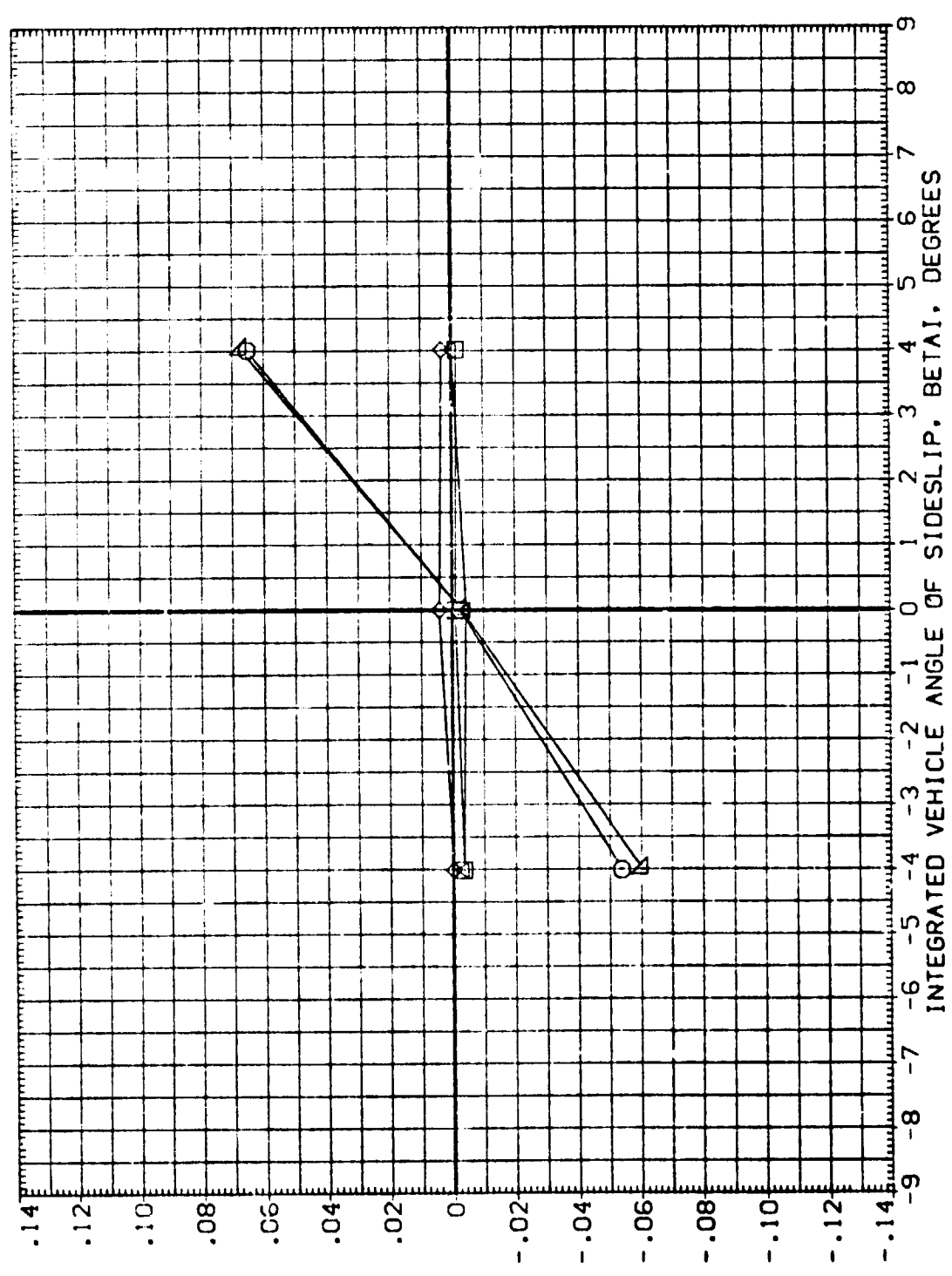


FIG. 24 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4
(B)ALPHA= -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-3B	MACH	SPOBRK	REFERENCE INFORMATION
(LE1047)	AMES97-019(1A81) LVAP ORBITER-ALL HL SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LE1147)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LE1247)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	2.000	.000	BREF 1.97.0000 IN. XT
(LE1347)	AMES97-019(1A81) LVAP R-LRB - ALL HL SEALED	10.000	-4.000	2.000	.000	XMRP 976.0000 IN. YT
(LE1447)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	10.000	-4.000	2.000	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

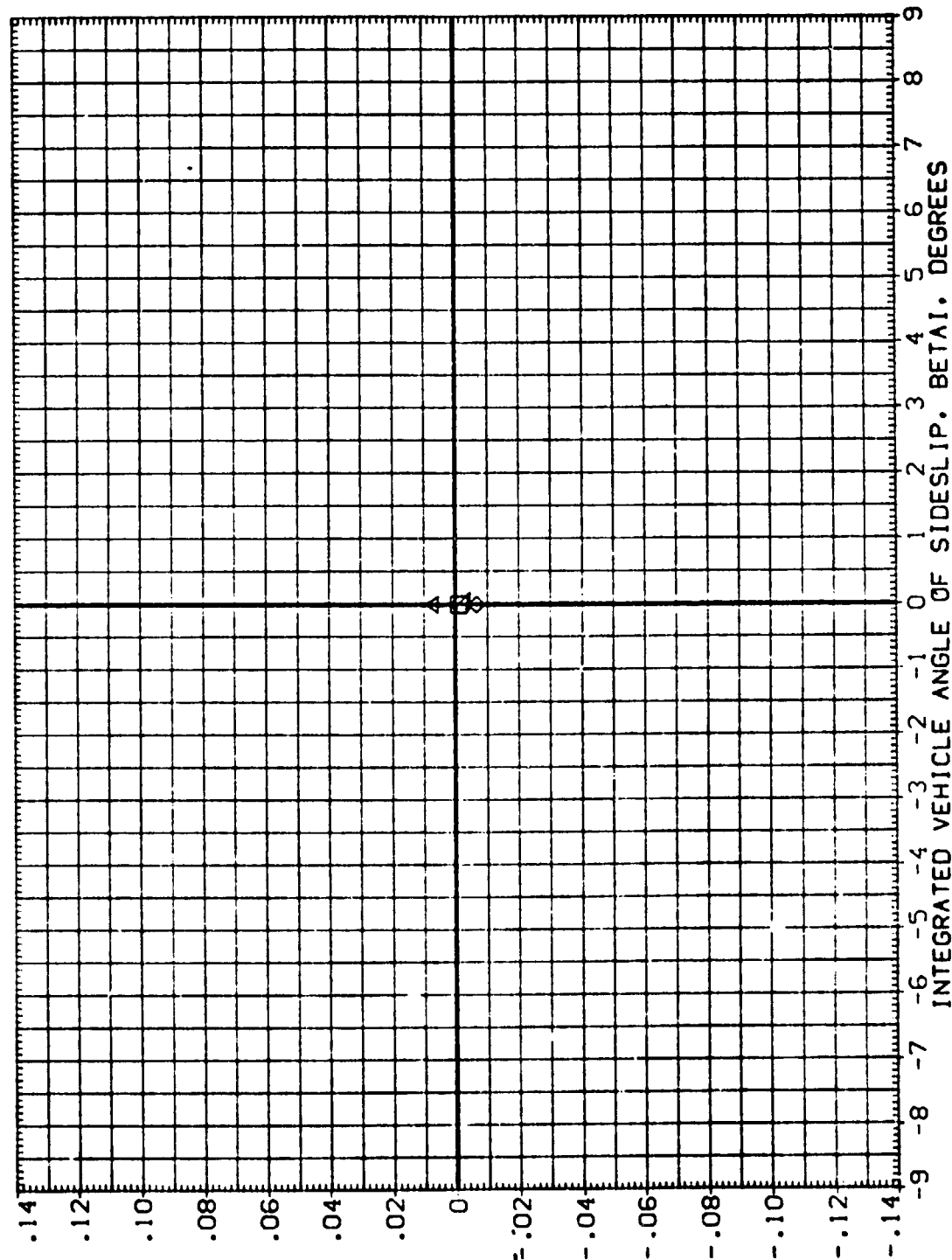


FIG. 24 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4

(C)ALPHA= -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDRK	REFERENCE INFORMATION
(LET047)	AMES97-019(1A81) LVAP	10.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LET147)	AMES97-019(1A81) LVAP	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LET147)	AMES97-019(1A81) LVAP	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LET147)	AMES97-019(1A81) LVAP	10.000	-4.000	2.000	.000	XREF 976.0000 IN.
(LET147)	AMES97-019(1A81) LVAP	10.000	-4.000	2.000	.000	YREF 400.0000 IN.
(LET147)	AMES97-019(1A81) LVAP	10.000	-4.000	2.000	.000	ZREF 400.0000 IN.
						SCALE .0300

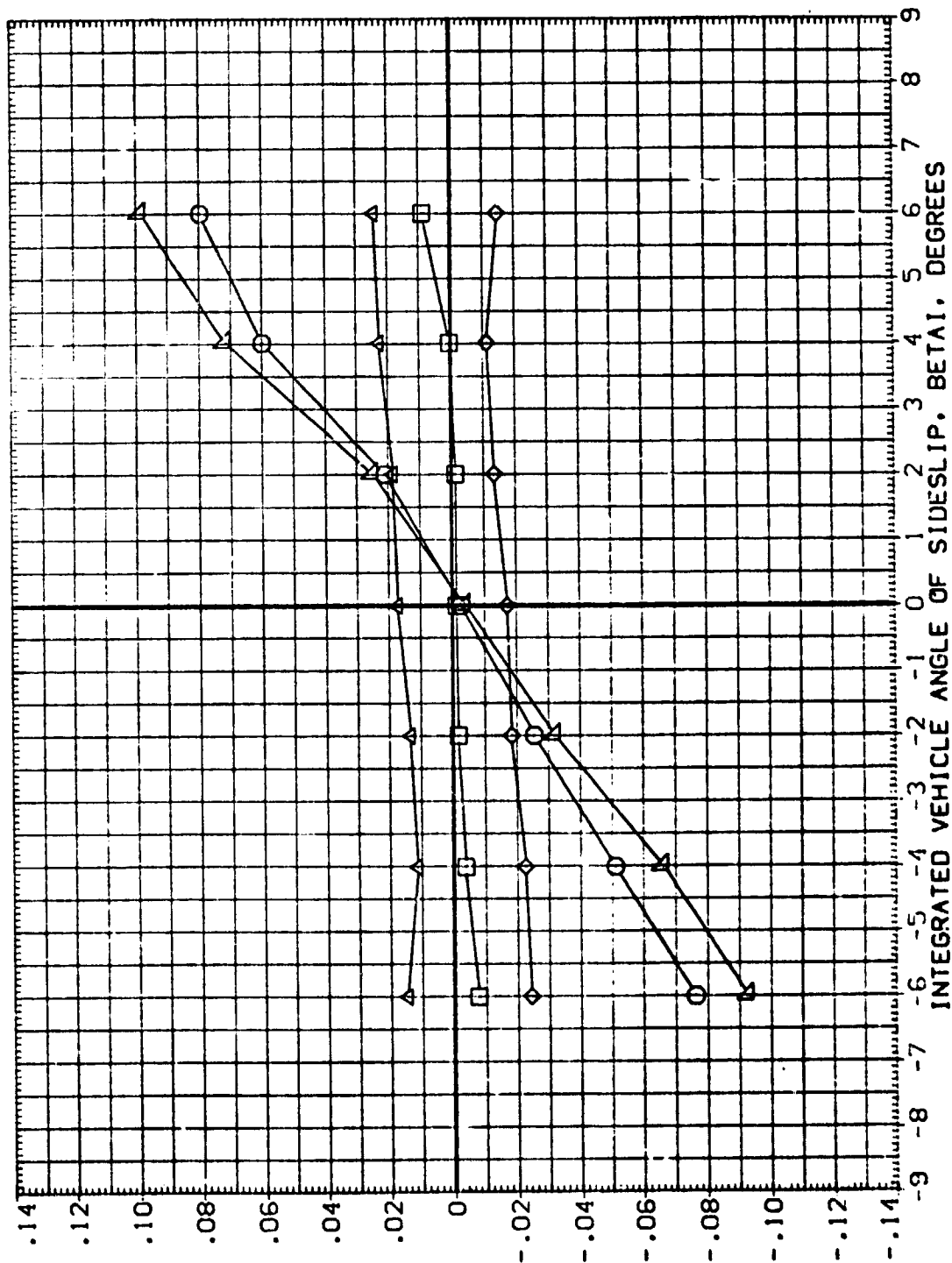
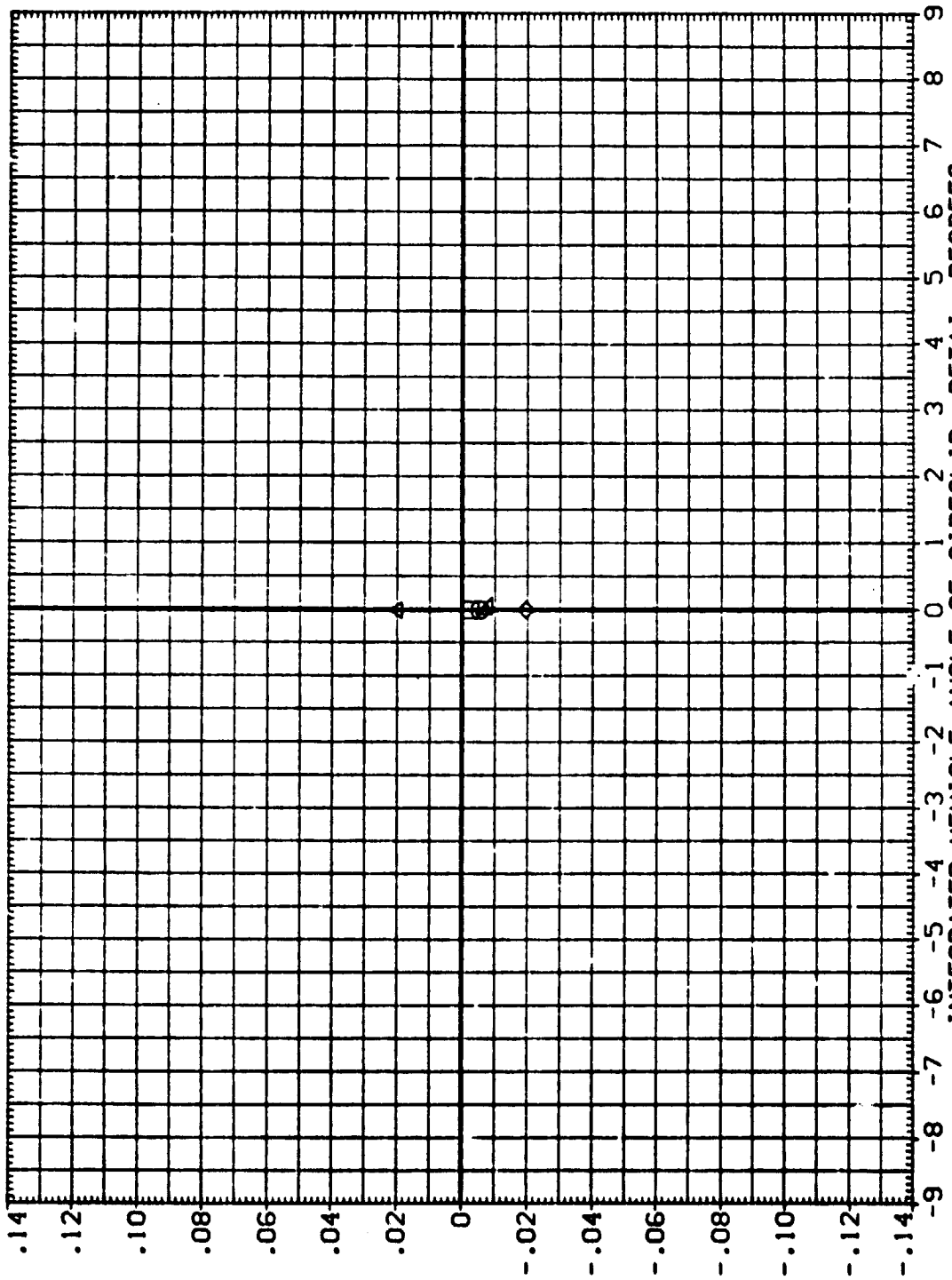


FIG. 24 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4

(D)ALPHA1 = .00 PAGE 568

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LE1047)	AHE597-019(IAB1) LVAP CUBSTER-ALL HL SEALED	10.000	-4.000	2.000	.000	SPEF 2630.0000 SQ.FT.
(LE1147)	AHE597-019(IAB1) LVAP TARP - ALL HL SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LE1147)	AHE597-019(IAB1) LVAP L-CPB - ALL HL SEALED	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LE1147)	AHE597-019(IAB1) LVAP R-LPB ALL HL SEALED	10.000	-4.000	2.000	.000	XMRP 976.0000 IN.
(LE1147)	AHE597-019(IAB1) LVAP INT VEH ALL HL SEALED	10.000	-4.000	2.000	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300



FOREBODY YAWING MOMENT COEFFICIENT, C_{YMF}

FIG. 24 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=2.0$ $DEV=10/-4$
 $(\epsilon)ALPHA= 2.00$ PAGE 569

DATA SET SYMBOL CONFIGURATION DESCRIPTION ELV-1B ELV-0B MACH SPDBRK REFERENCE INFORMATION

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(LE1047)	AME397-019(IAB1) LVAP CS91TER-ALL HL SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LE1147)	AME397-019(IAB1) LVAP TANK - ALL HL SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LE1L47)	AME397-019(IAB1) LVAP L-SPB - ALL HL SEALED	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LE1R47)	AME397-019(IAB1) LVAP R-LMB - ALL HL SEALED	10.000	-4.000	2.000	.000	YMRP 976.0000 IN. XT
(LE147)	AME397-019(IAB1) LVAP INT VEH ALL HL SEALED	10.000	-4.000	2.000	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

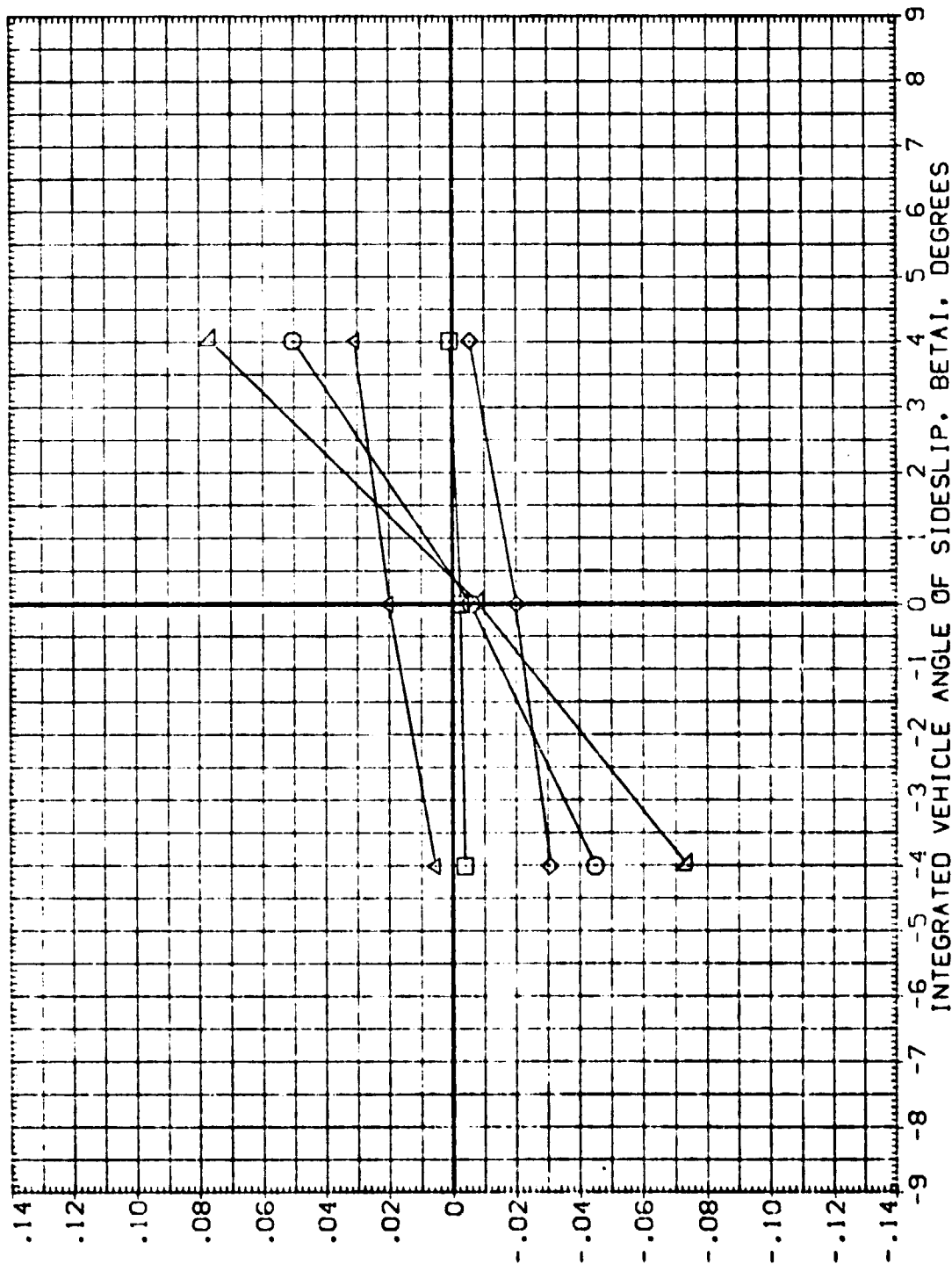


FIG. 24 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4
(F)ALPHA= 4.00 PAGE 570

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(LE1047)	□	AMES97-019(1A81) LVAP ORBITTER-ALL HL SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LE1147)	□	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LE1447)	□	AMES97-019(1A81) LVAP L-SPB - ALL HL SEALED	10.000	-4.000	2.000	.000	BREF 976.0000 IN.
(LE1447)	□	AMES97-019(1A81) LVAP R-LPB - ALL HL SEALED	10.000	-4.000	2.000	.000	XMRP .0000 IN.
(LE1147)	□	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	10.000	-4.000	2.000	.000	ZMRP 400.0000 IN.
							SCALE .0300

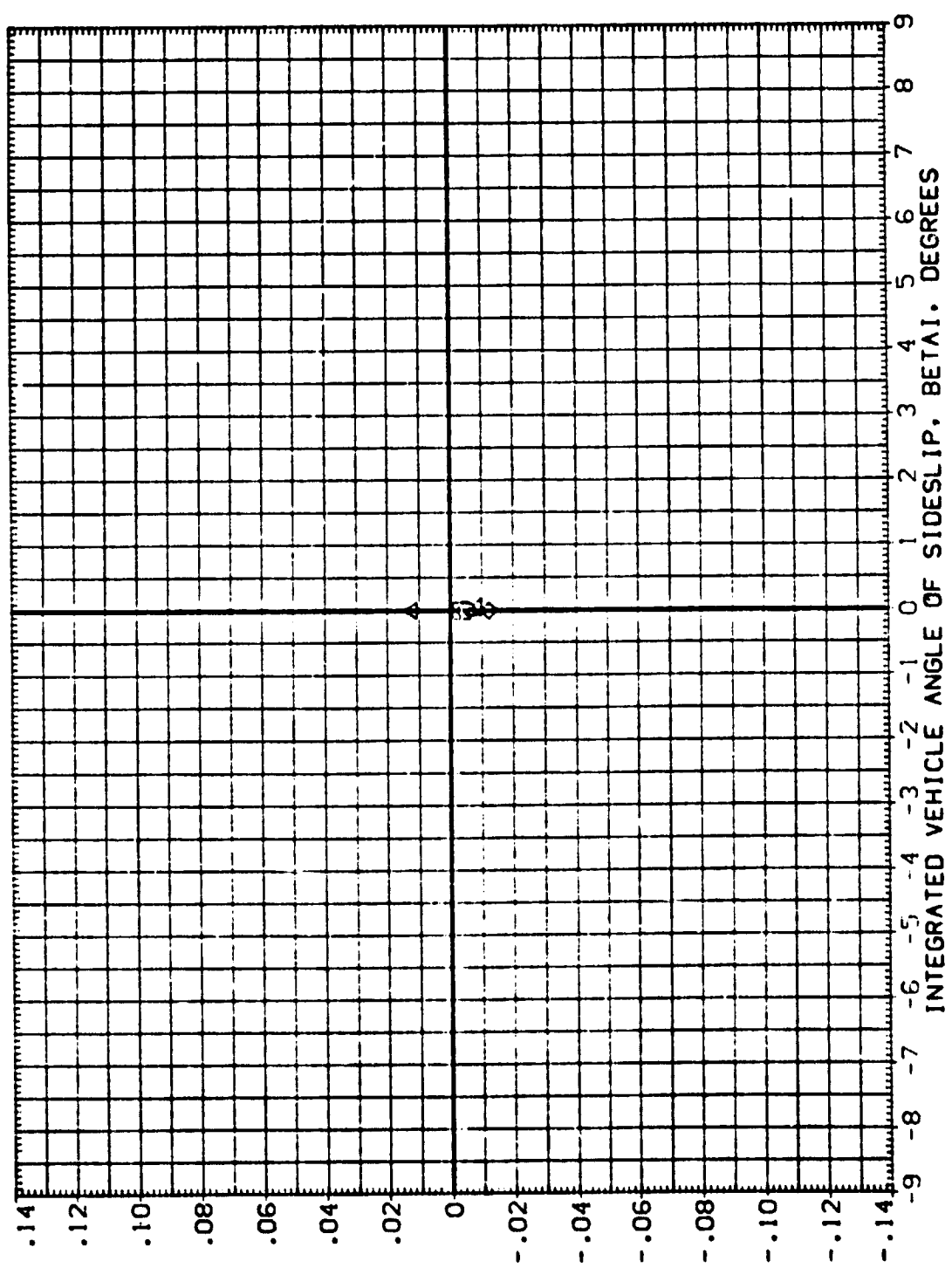


FIG. 24 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SP08RK	REFERENCE INFORMATION
(LET047)	AME397-019(IAB1) LVAP ORBITER-ALL HL SEALED	10.000	-4.000	2.000	.000	SMEF 2690.0000 SQ.FT.
(LET147)	AME397-019(IAB1) LVAP TANK - ALL HL SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LET147)	AME397-019(IAB1) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	2.000	.000	BREF 976.0000 IN. XT
(LET147)	AME397-019(IAB1) LVAP P-LPB ALL HL SEALED	10.000	-4.000	2.000	.000	YMRP 400.0000 IN. YT
(LET147)	AME397-019(IAB1) LVAP INT VEM ALL HL SEALED	10.000	-4.000	2.000	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

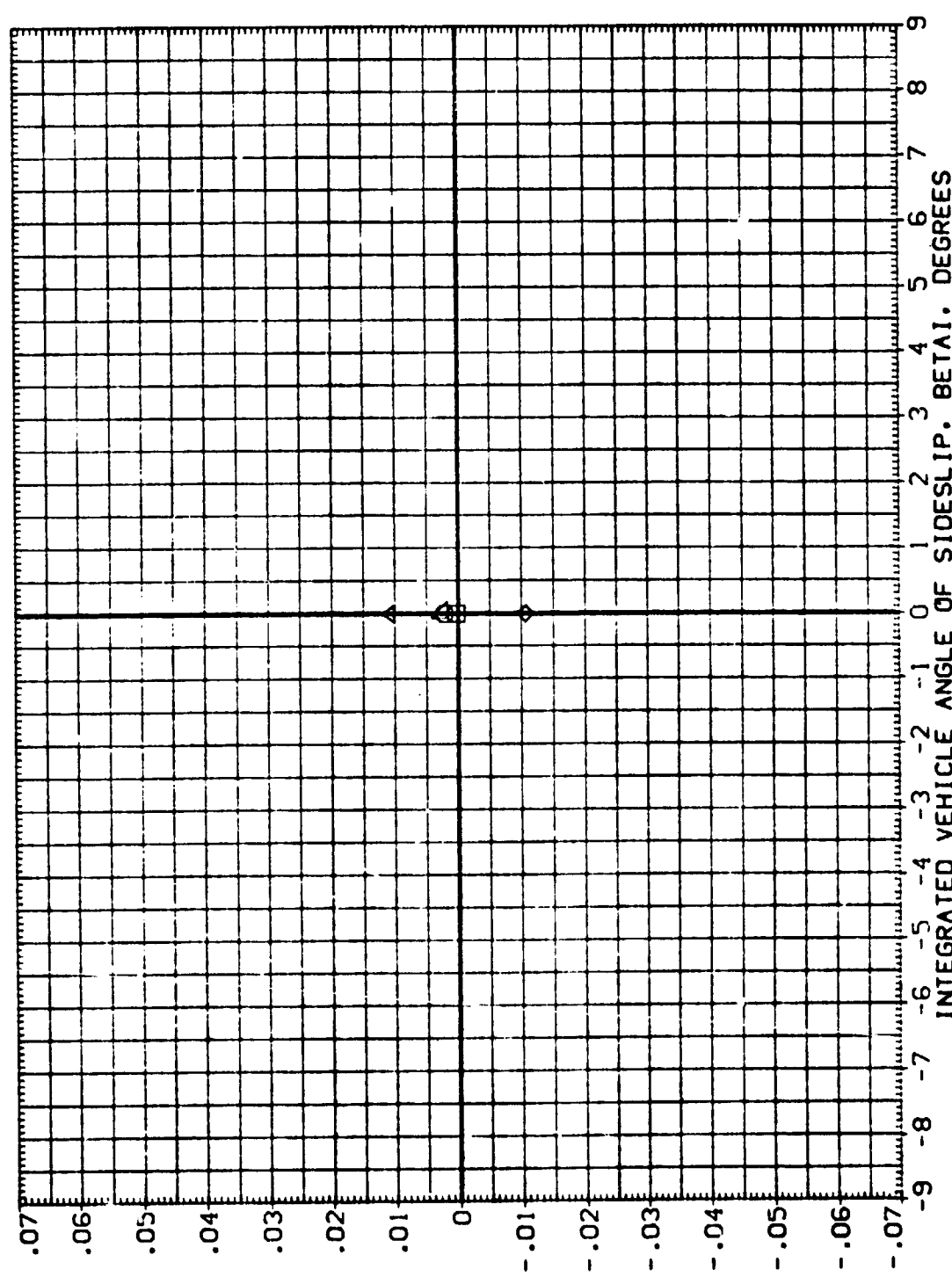
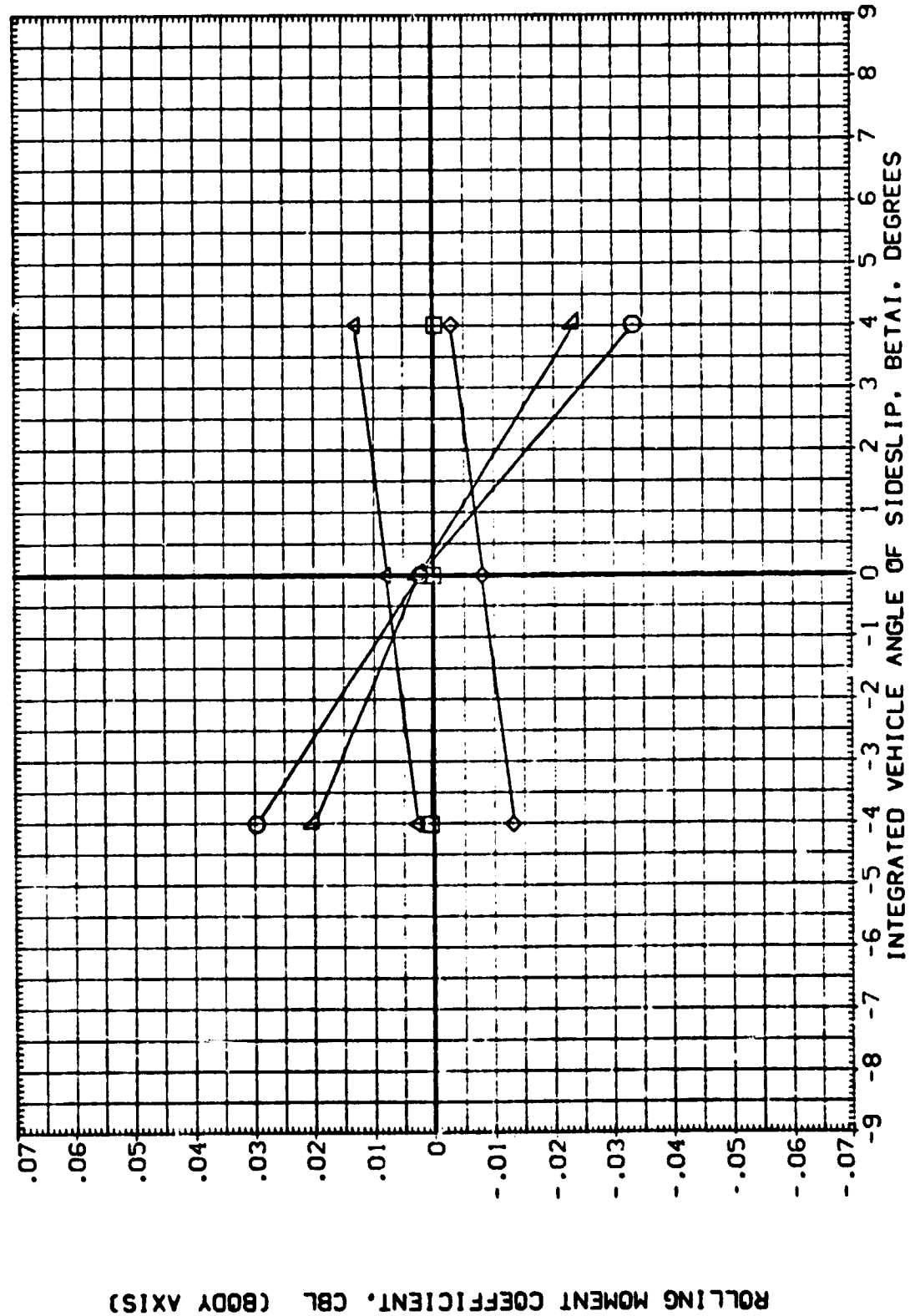


FIG. 24 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4
 (A) ALPHA = -6.00
 PAGE 572

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDRK	REFERENCE INFORMATION
(LETO47)	AME597-019(IAB1) LVAP GPBTER-ALL ML SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LETT47)	AME597-019(IAB1) LVAP TARK - ALL ML SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LETL47)	AME597-019(IAB1) LVAP L-SRB - ALL ML SEALED	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LETR47)	AME597-019(IAB1) LVAP R-LRH ALL ML SEALED	10.000	-4.000	2.000	.000	XMRP 976.0000 IN. XT
(LETT47)	AME597-019(IAB1) LVAP INT VEH ALL ML SEALED	10.000	-4.000	2.000	.000	YMRP 400.0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

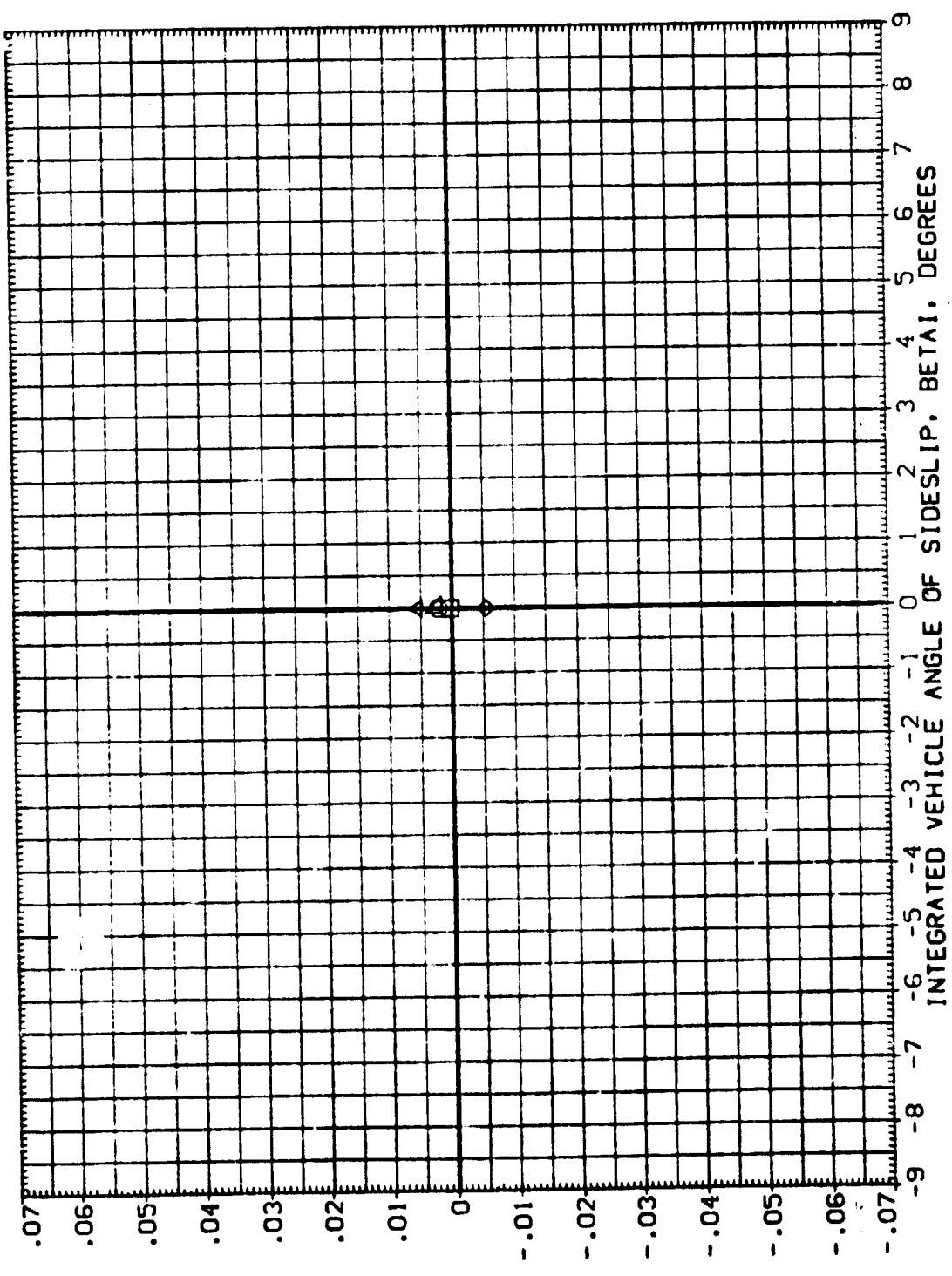


ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

FIG. 24 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4

(B)ALPHA = -4.00

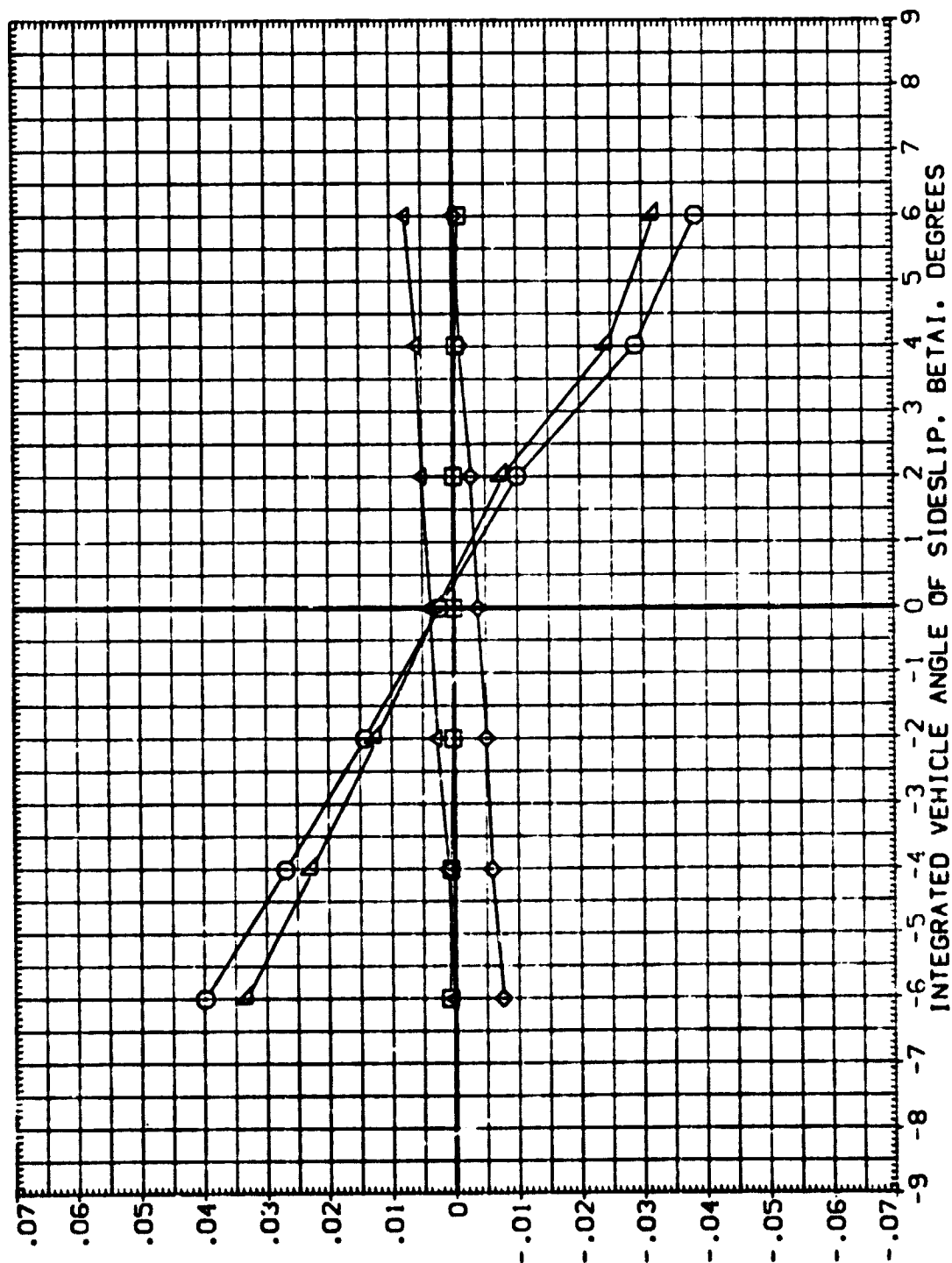
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LET047)	AMES97-019C(1A81) LVAP ORBITER-ALL ML SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LET147)	AMES97-019C(1A81) LVAP TANK - ALL ML SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LET147)	AMES97-019C(1A81) LVAP L-SRB - ALL ML SEALED	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LET147)	AMES97-019C(1A81) LVAP R-LRB - ALL ML SEALED	10.000	-4.000	2.000	.000	XMRP 976.0000 IN.
(LET147)	AMES97-019C(1A81) LVAP INT VEH ALL ML SEALED	10.000	-4.000	2.000	.000	YMRP .0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300



ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

FIG. 24 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4
(C)ALPHA= -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-08	MACH	SPDBRK	REFERENCE INFORMATION
(LET047)	AME597-019(IAB1) LVAP ORG:TER-ALL ML SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000 SO.FT.
(LET147)	AME597-019(IAB1) LVAP TANK - ALL ML SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LET147)	AME597-019(IAB1) LVAP L-CRB - ALL ML SEALED	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LET147)	AME597-019(IAB1) LVAP R-LRB - ALL ML SEALED	10.000	-4.000	2.000	.000	XMRP 976.0000 IN. XT
(LET147)	AME597-019(IAB1) LVAP INT VEM ALL ML SEALED	10.000	-4.000	2.000	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300



ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

FIG. 24 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4

(D)ALPHA= .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDBRK	REFERENCE INFORMATION
(LE1047)	AME597-019(1AB1) LVAP ORBITER-ALL ML SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LE1147)	AME597-019(1AB1) LVAP TANK - ALL ML SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LE1247)	AME597-019(1AB1) LVAP L-SRB - ALL ML SEALED	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LE1347)	AME597-019(1AB1) LVAP R-SRB - ALL ML SEALED	10.000	-4.000	2.000	.000	XMRP 976.0000 IN. XT
(LE1447)	AME597-019(1AB1) LVAP INT VEH ALL ML SEALED	10.000	-4.000	2.000	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

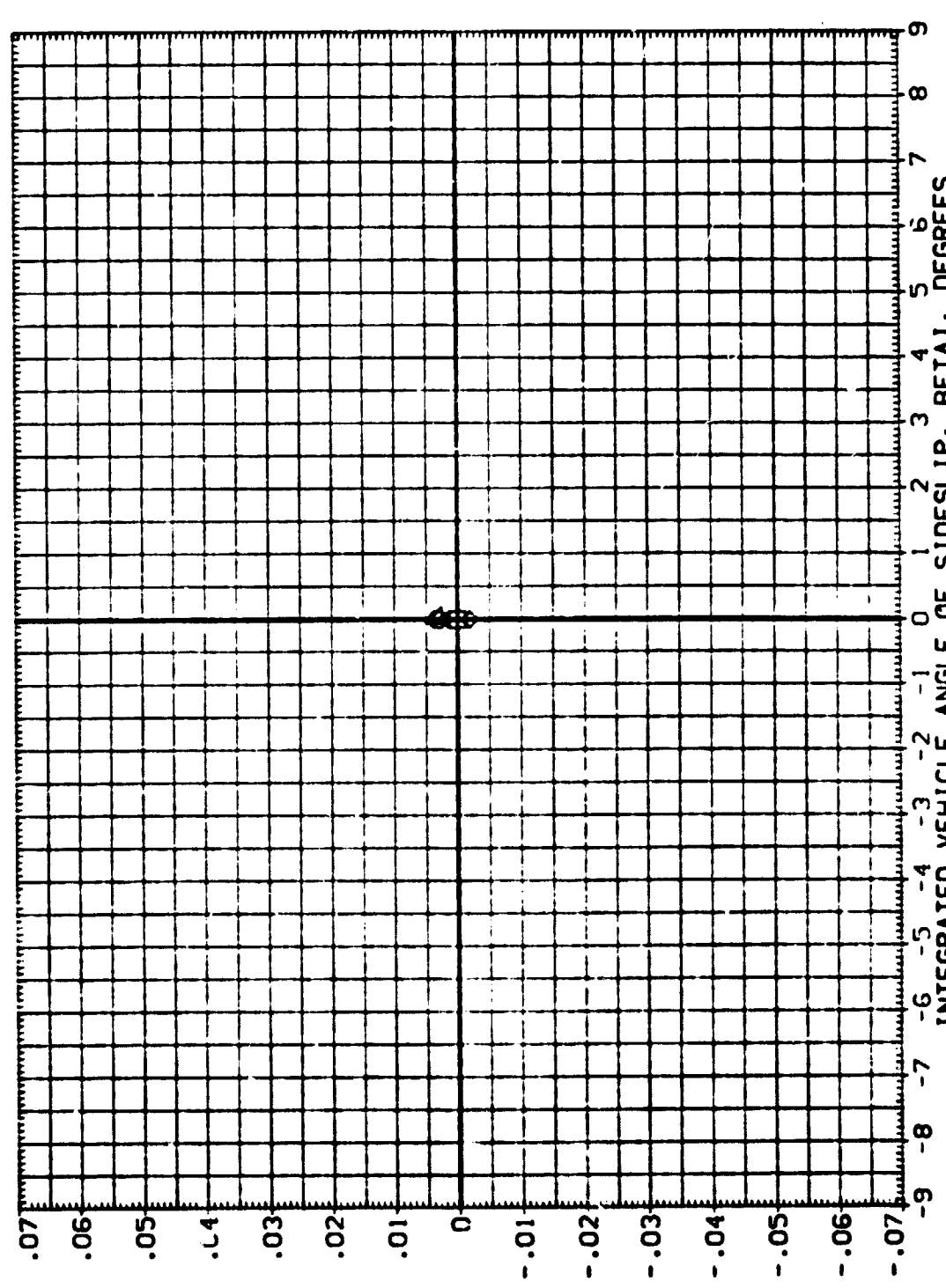


FIG. 24 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4
(E)ALPHA1= 2.00

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SP3BRK	REFERENCE INFORMATION
(LET047)		AMES97-019(1A81) LVAP ORBITER-ALL M SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LET147)		AMES97-019(1A91) LVAP TANK - ALL M SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LET147)		AMES97-019(1A81) LVAP L-SPB - ALL M SEALED	10.000	-4.000	2.000	.000	SREF 1297.0000 IN.
(LET147)		AMES97-019(1A81) LVAP R-LPB - ALL M SEALED	10.000	-4.000	2.000	.000	YMRP 976.0000 IN.
(LET147)		AMES97-019(1A81) LVAP INT VEH ALL M SEALED	10.000	-4.000	2.000	.000	ZMRP 400.0000 IN.
							SCALE .0300

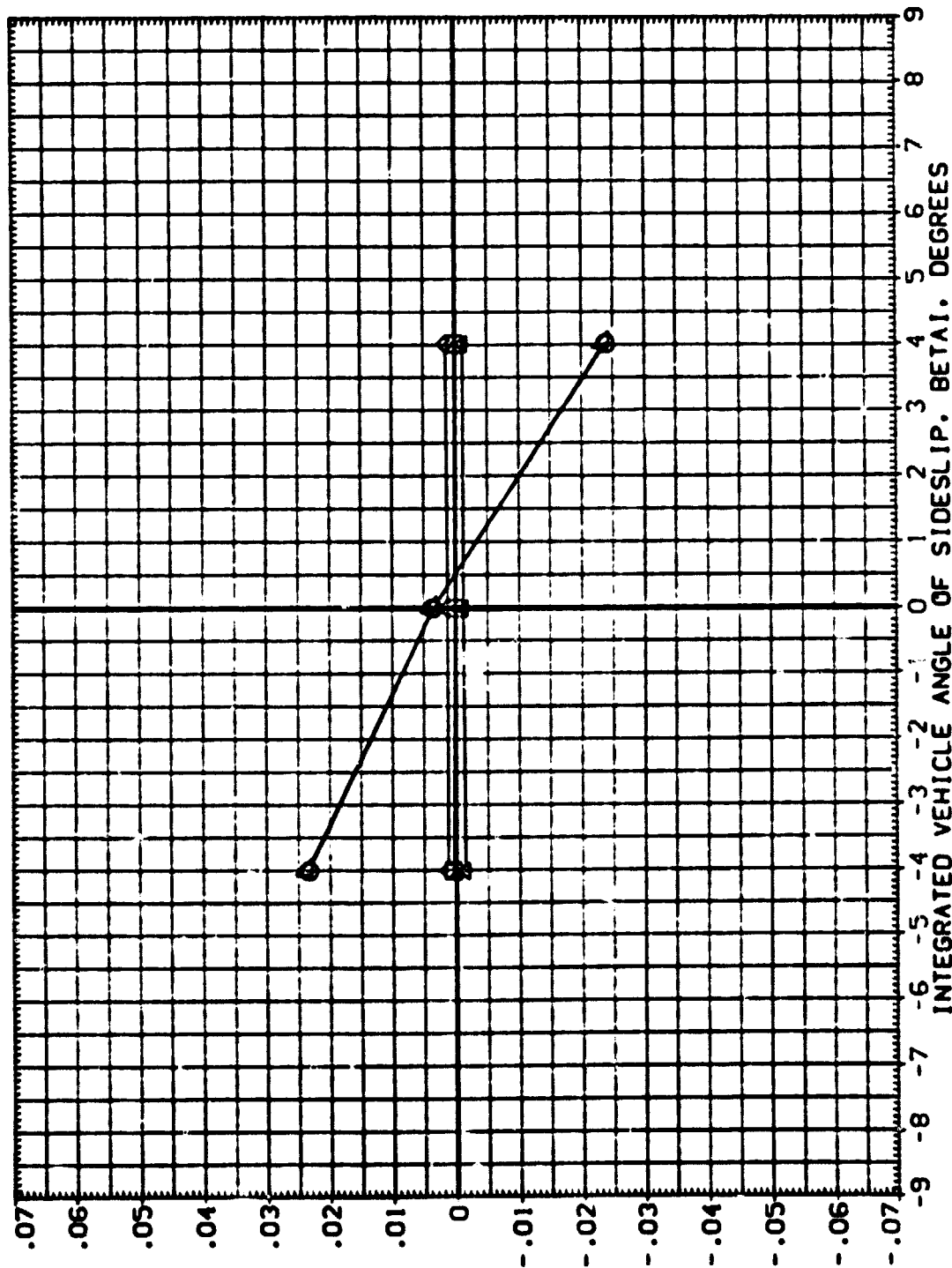


FIG. 24 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4

(F)ALPHA= 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LE1047)	AMES97-019(IAB1) LVAP ORBITER-ALL ML SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LE1147)	AMES97-019(IAB1) LVAP TANK - ALL ML SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LE1247)	AMES97-019(IAB1) LVAP L-CRB - ALL ML SEALED	10.000	-4.000	2.000	.000	BREF 1297.0000 N.
(LE1347)	AMES97-019(IAB1) LVAP R-LRB - ALL ML SEALED	10.000	-4.000	2.000	.000	YMRP 976.0000 IN. Y
(LE147)	AMES97-019(IAB1) LVAP INT VEH ALL ML SEALED	10.000	-4.000	2.000	.000	ZMRP 400.0000 IN. Z
						SCALE .0300

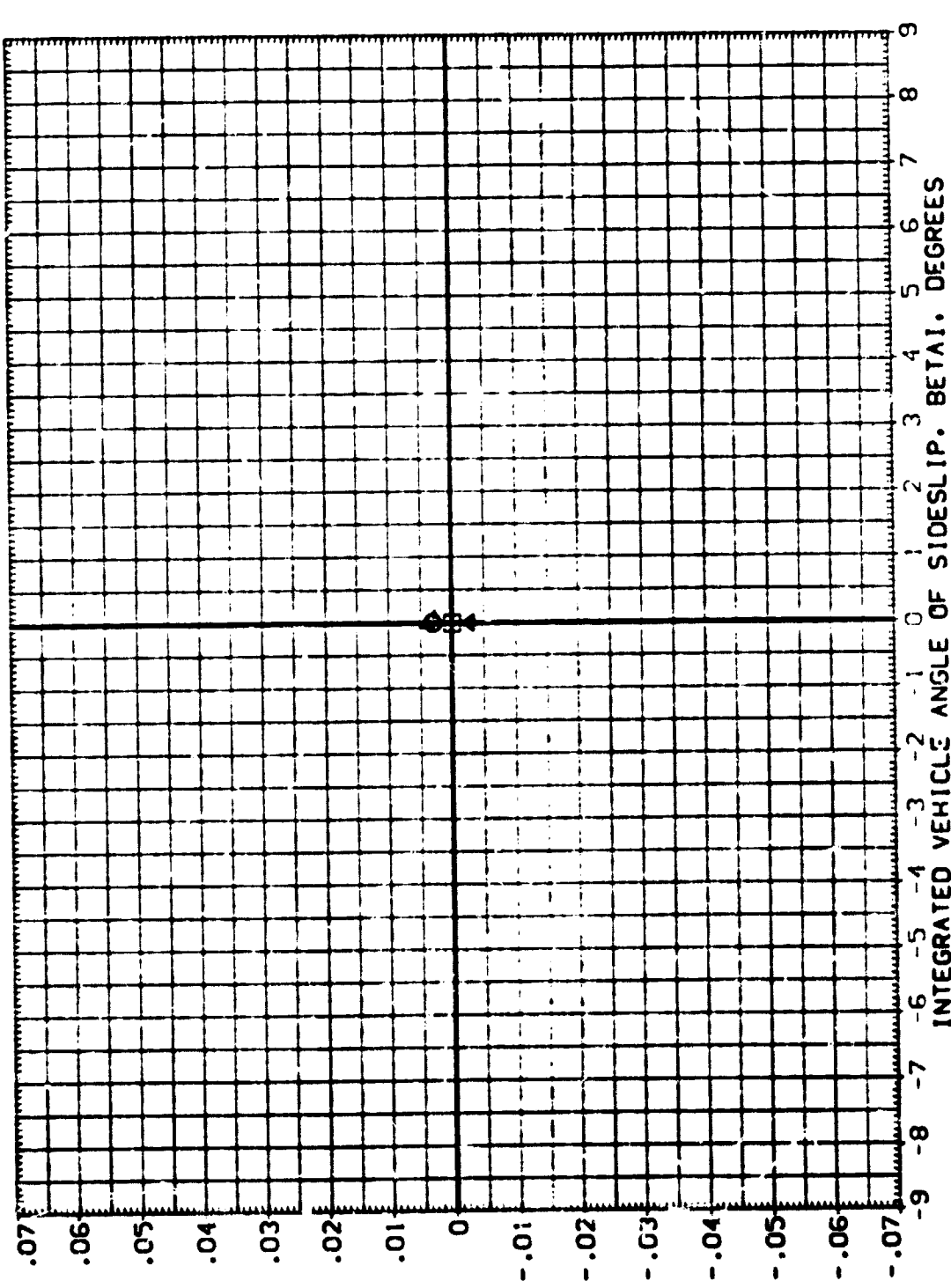


FIG. 24 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=2.0$ $DEV=10/-4$
 $(G)ALPHA= 6.00$ PAGE 578

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LE1047)	AMES97-019(1A81) LVAP	10.000	-4.000	2.000	.000	SREF 2690.0000 SO.FT.
(LE1147)	AMES97-019(1A81) LVAP	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LE147)	AMES97-019(1A81) LVAP	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LE1R47)	AMES97-019(1A81) LVAP	10.000	-4.000	2.000	.000	XMRP 976.0000 IN. XT
(LE1147)	AMES97-019(1A81) LVAP	10.000	-4.000	2.000	.000	YMRP 400.0000 IN. YT
						SCALE .0300

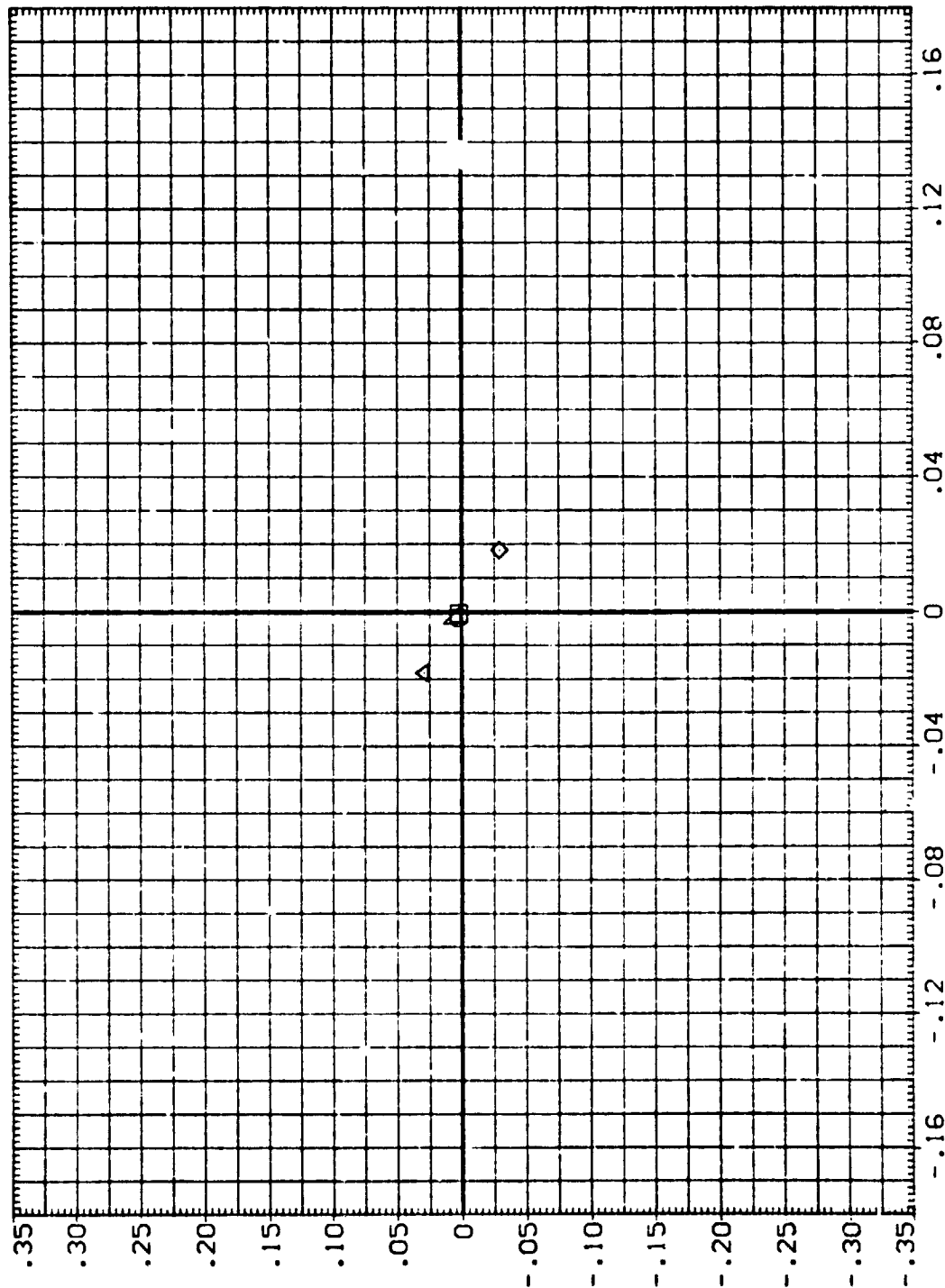


FIG. 24 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDBRK	REFERENCE INFORMATION	SQ.FT.
(LETO47)	AMES97-019(IAB1) LVAP	10.000	-4.000	2.000	.000	SREF	2690.0000
(LETT47)	AMES97-019(IAB1) LVAP	10.000	-4.000	2.000	.000	LREF	1297.0000
(LETL47)	AMES97-019(IAB1) LVAP	10.000	-4.000	2.000	.000	BREF	1297.0000
(LETR47)	AMES97-019(IAB1) LVAP	10.000	-4.000	2.000	.000	XMRP	976.0000
(LETT47)	AMES97-019(IAB1) LVAP	10.000	-4.000	2.000	.000	YMRP	.0000
(LETT47)	AMES97-019(IAB1) LVAP	10.000	-4.000	2.000	.000	ZMRP	400.0000
						SCALE	.0300

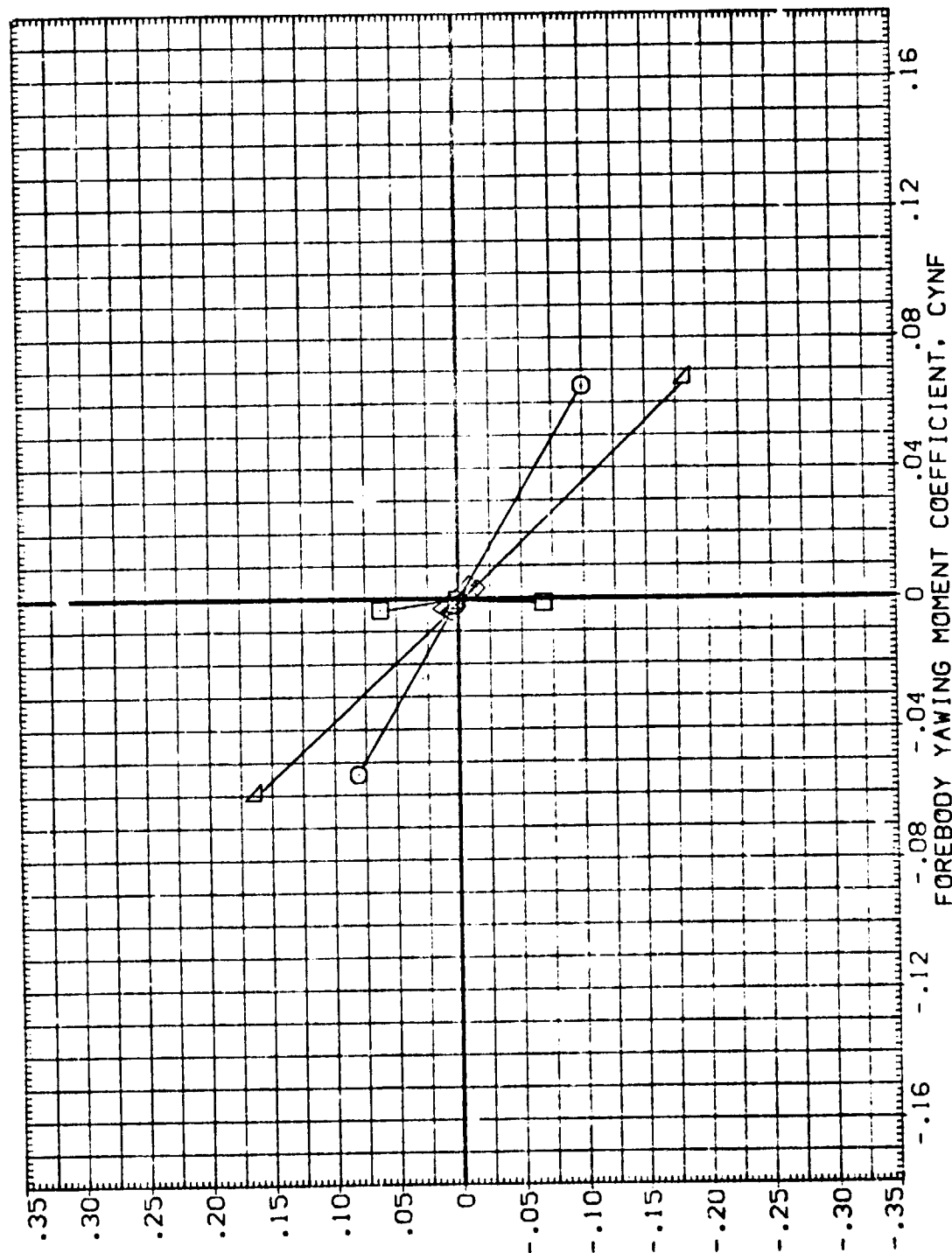


FIG. 24 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=2.0$ $DEV=10/-4$
 (B) $\alpha_{PHI} = -4.0^\circ$ PAGE 580

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LE1047)	AMES97-019(1A81) LVAP ORBITER-ALL HL SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LE1147)	AMES57-019(1A81) LVAP TANK - ALL HL SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LE1147)	AMES97-019(1A81) LVAP L-SPB - ALL HL SEALED	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LE1147)	AMES97-019(1A81) LVAP R-LRB ALL HL SEALED	10.000	-4.000	2.000	.000	XMRP 976.0000 IN.
(LE1147)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	10.000	-4.000	2.000	.000	YMRP 400.0000 IN.
						SCALE .0300

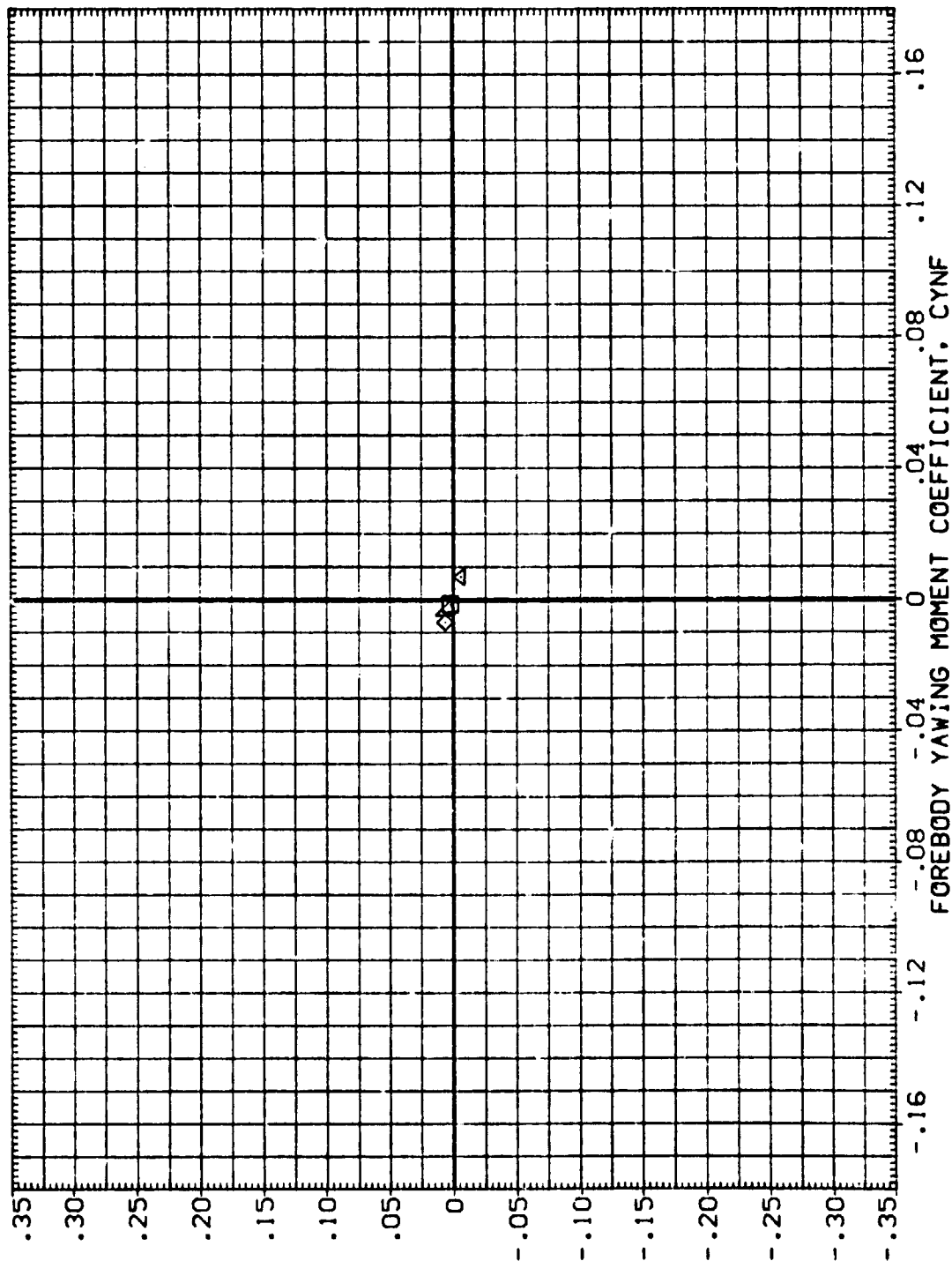


FIG. 24 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4

(C) ALPHA = -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(LE1047)	AMES97-019(TAB1) LVAP	10.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LE1147)	AMES97-019(TAB1) LVAP	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LE1L47)	AMES97-019(TAB1) LVAP	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LE1R47)	AMES97-019(TAB1) LVAP	10.000	-4.000	2.000	.000	XMRP 976.0000 IN.
(LE1T47)	AMES97-019(TAB1) LVAP	10.000	-4.000	2.000	.000	YMRP 0.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

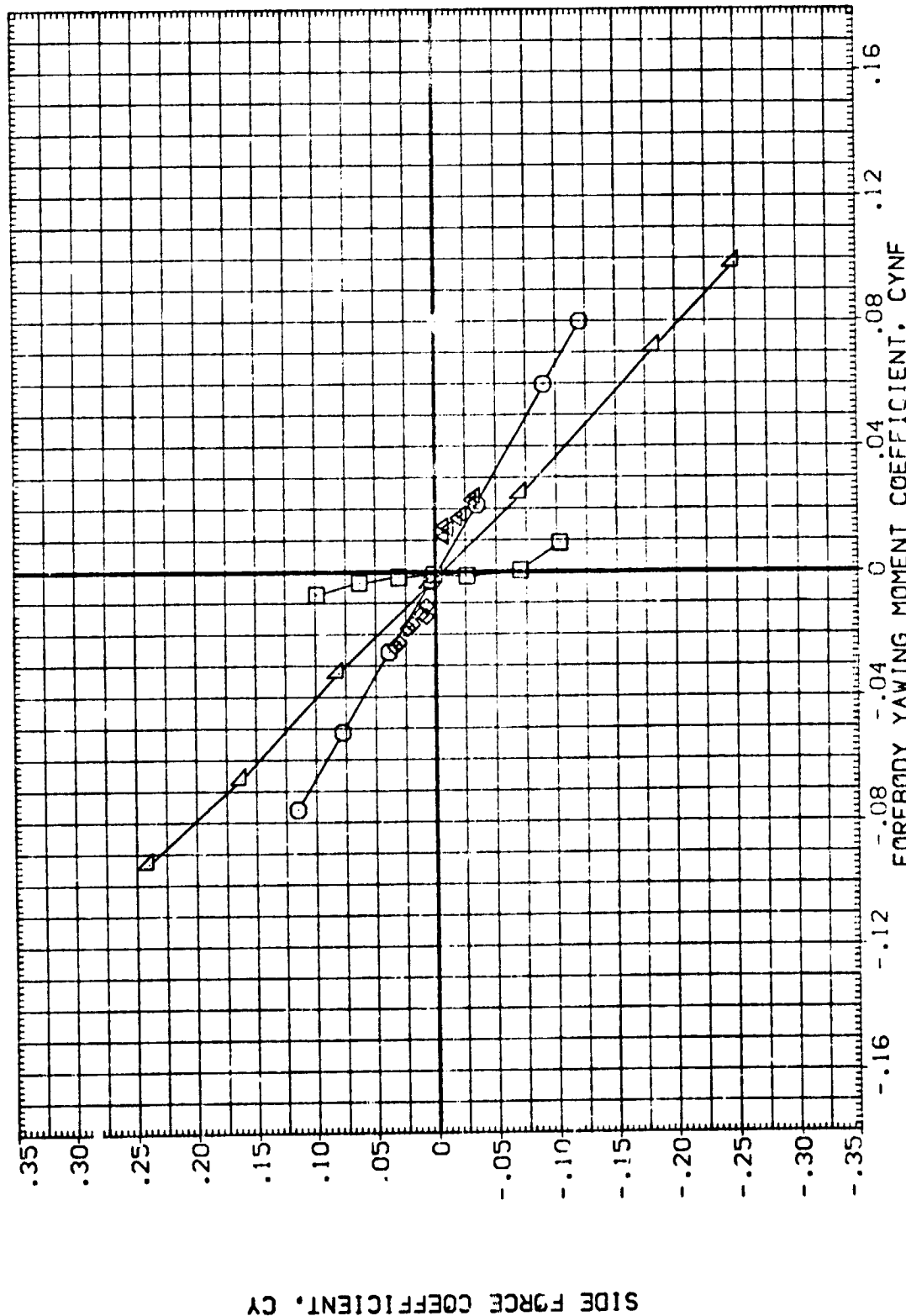


FIG. 24 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4

(D)ALPHA= .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION	SO.FT.
(LE1047)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000	IN.
(LE1147)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000	IN.
(LE147)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	2.000	.000	BREF 1297.0000	IN. XT
(LE147)	AMES97-019(IAB1) LVAP R-LPB ALL HL SEALED	10.000	-4.000	2.000	.000	XMRP 976.0000	IN. YT
(LE147)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	10.000	-4.000	2.000	.000	YMRP .0000	IN. ZT
						ZMRP 400.0000	IN. ZT
						SCALE .0300	

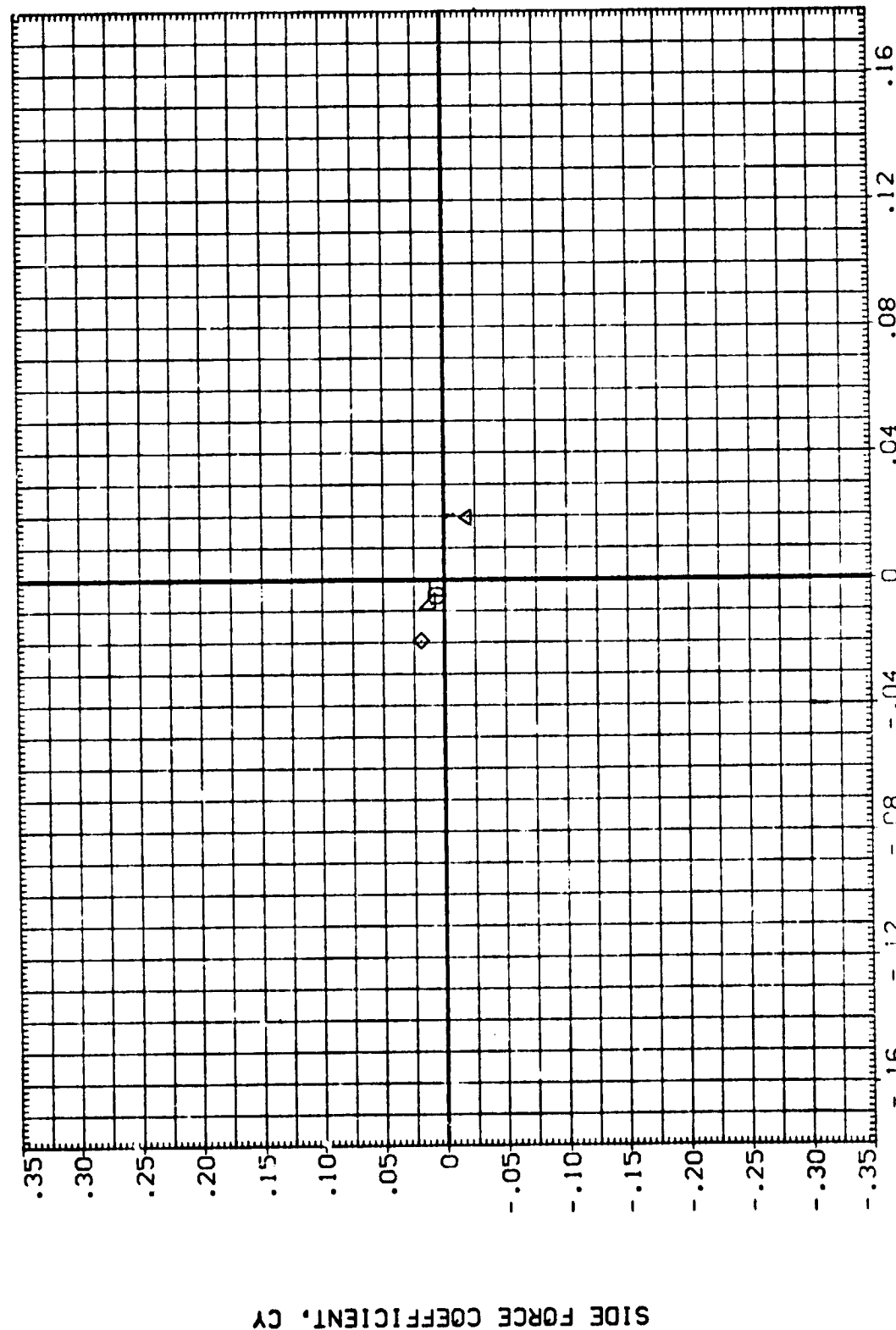


FIG. 24 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(LET047)	AMES97-019(1A81) LVAP	10.000	-4.000	2.000	.000	SREF 2890.0000 SQ.FT.
(LET147)	AMES97-019(1A81) LVAP	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LET147)	AMES97-019(1A81) LVAP	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LET147)	AMES97-019(1A81) LVAP	10.000	-4.000	2.000	.000	XMRP 976.0000 IN.
(LET147)	AMES97-019(1A81) LVAP	10.000	-4.000	2.000	.000	YMRP 400.0000 IN.
(LET147)	AMES97-019(1A81) LVAP	10.000	-4.000	2.000	.000	ZMRP 400.0000 IN.
						SCALE .0300

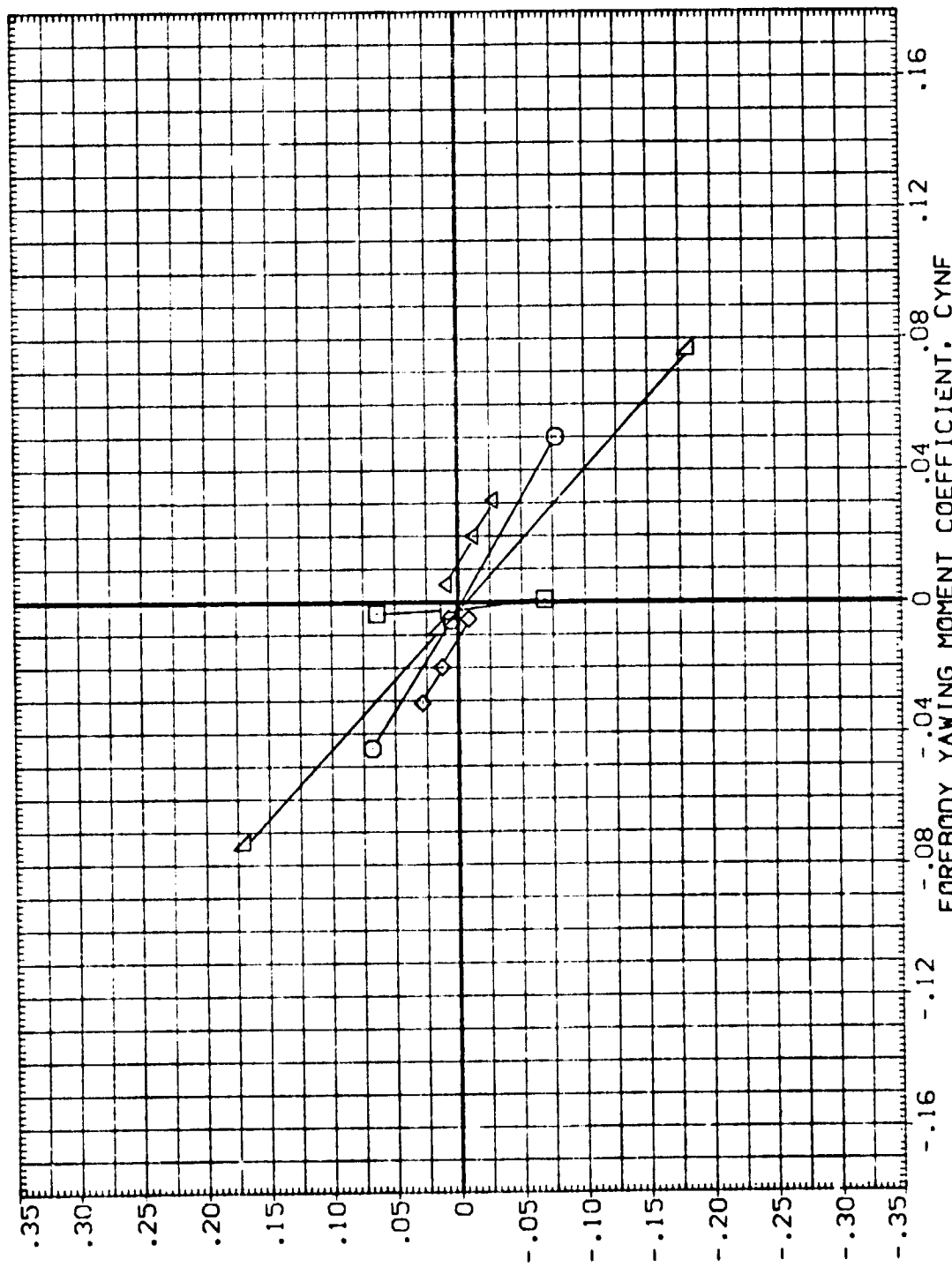


FIG. 24 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4
(F)ALPHA= 4.00

REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(LE1047)	AMES97-019(IAB1) LVAP CRB1 TER-ALL HL SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LE1147)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LE1447)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	2.000	.000	BREF 1297.0000 IN. XT
(LE1R47)	AMES97-019(IAB1) LVAP P-LRB - ALL HL SEALED	10.000	-4.000	2.000	.000	XMRP 976.0000 IN. YT
(LE1147)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	10.000	-4.000	2.000	.000	YMRP 400.0000 IN. ZT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

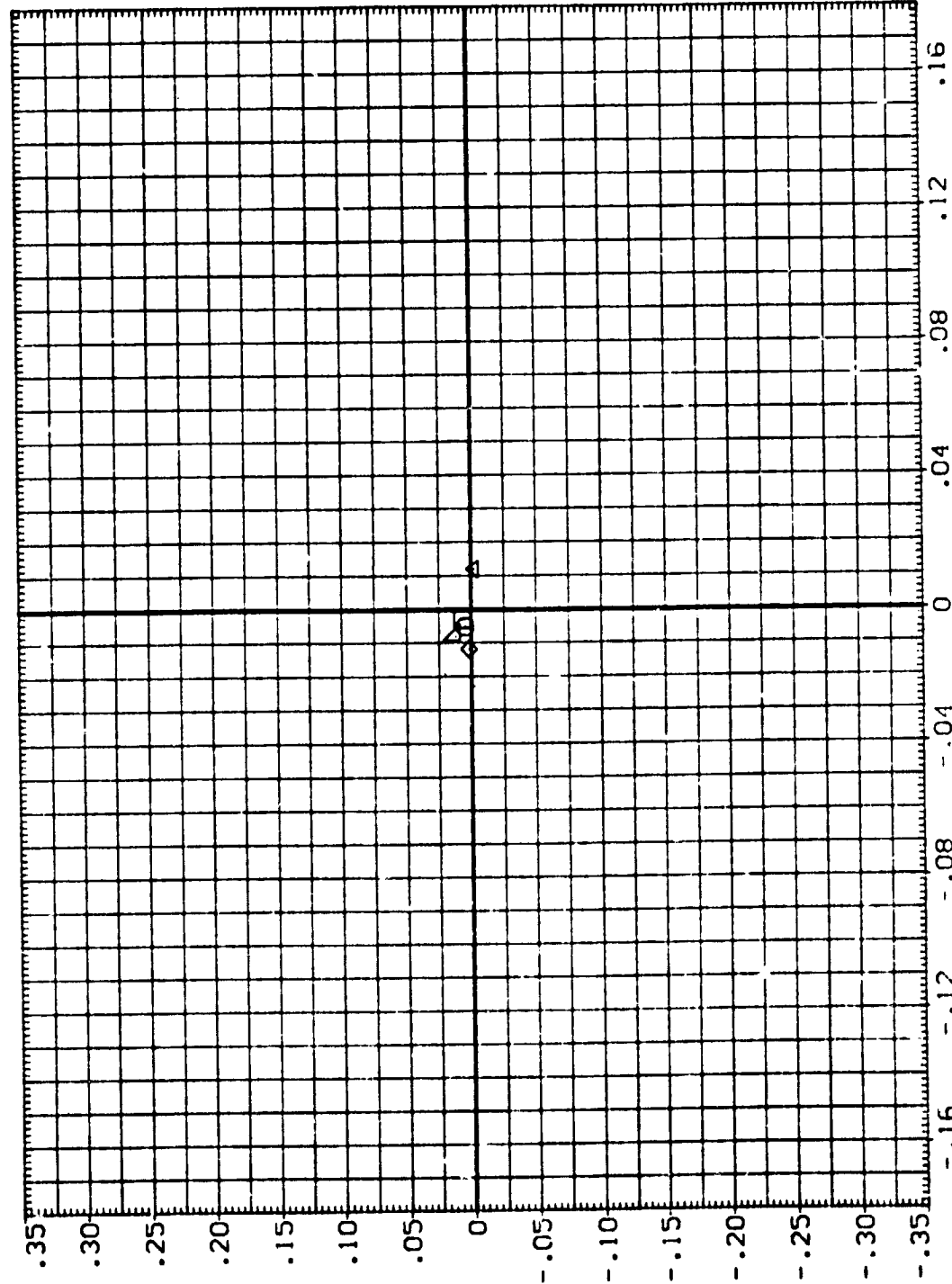


FIG. 24 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4

(G) ALPHA = 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(LE1047)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	10.000	4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LE1147)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LE1447)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LE1447)	AMES97-019(IAB1) LVAP R-LPB - ALL HL SEALED	10.000	-4.000	2.000	.000	XMRP 976.0000 IN. XT
(LE1447)	AMES97-019(IAB1) LVAP INT VEH - ALL HL SEALED	10.000	-4.000	2.000	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

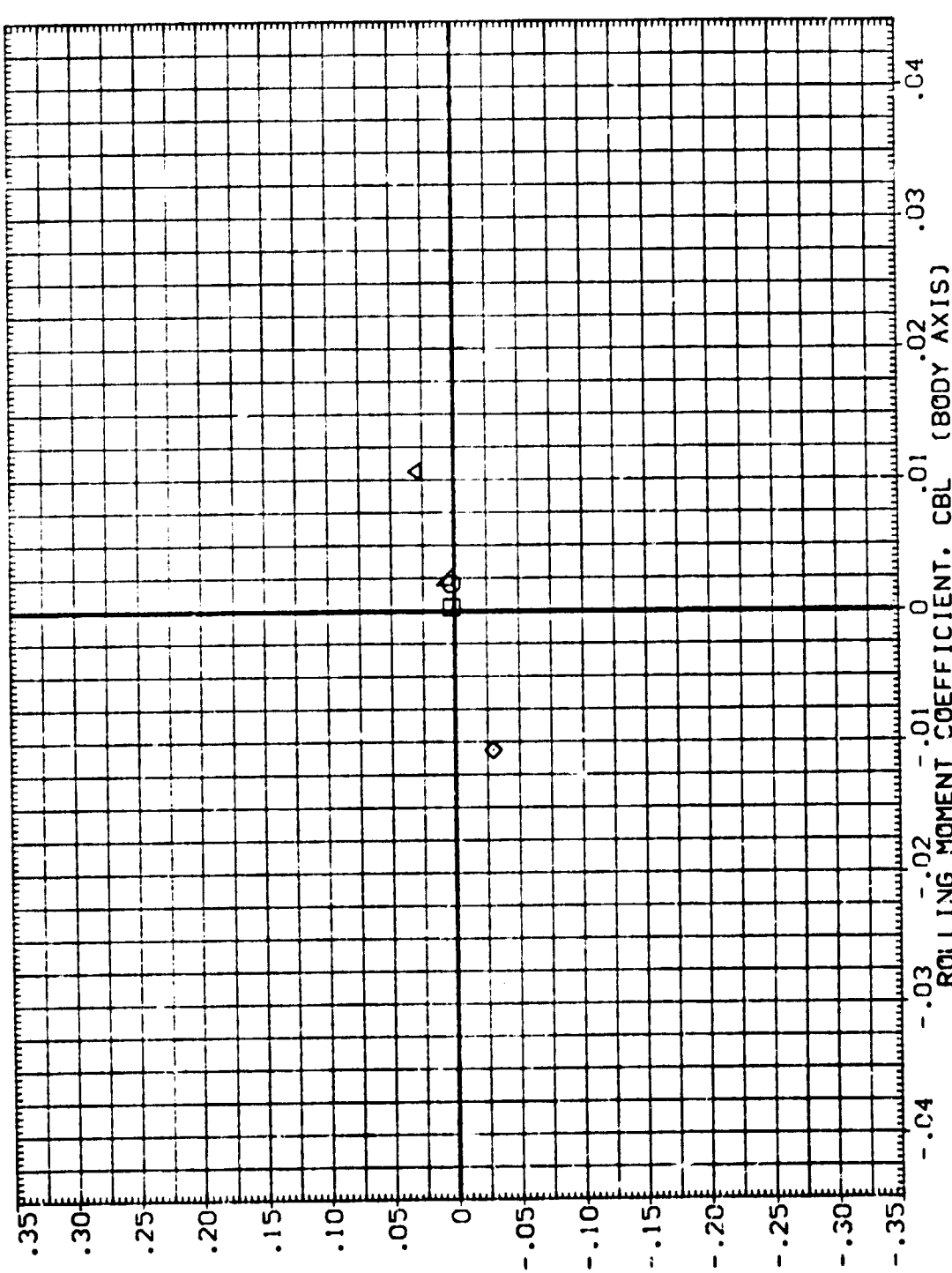


FIG. 24 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4
 (A) ALPHA = -6.00 PAGE 586

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(LETR47)	AMES97-0191(A81) LVAP ORBITER-ALL HL SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LETR47)	AMES97-0191(A81) LVAP TANK - ALL HL SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LETR47)	AMES97-0191(A81) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LETR47)	AMES97-0191(A81) LVAP R-LRB - ALL HL SEALED	10.000	-4.000	2.000	.000	XMRP 976.0000 IN. XT
(LETR47)	AMES97-0191(A81) LVAP INT VEH ALL HL SEALED	10.000	-4.000	2.000	.000	YMRP .0000 IN. YT
					ZMRP 400.0000 IN. ZT	SCALE .0300

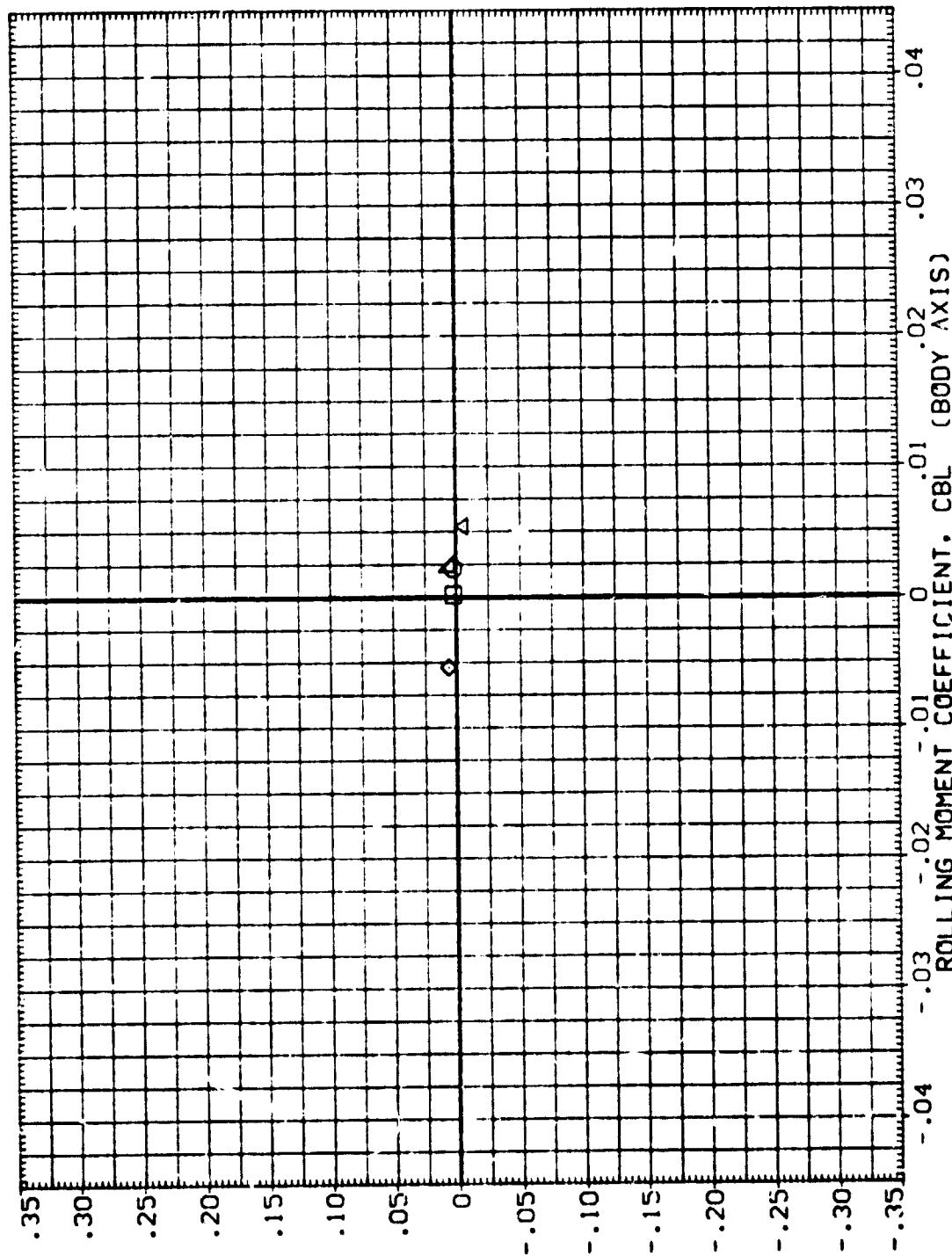


FIG. 24 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4

(C)ALPHA= -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(LETD47)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000 SO.FT.
(LETT47)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LETL47)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LETR47)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	10.000	-4.000	2.000	.000	XMRP 976.0000 IN. XT
(LETT47)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	10.000	-4.000	2.000	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

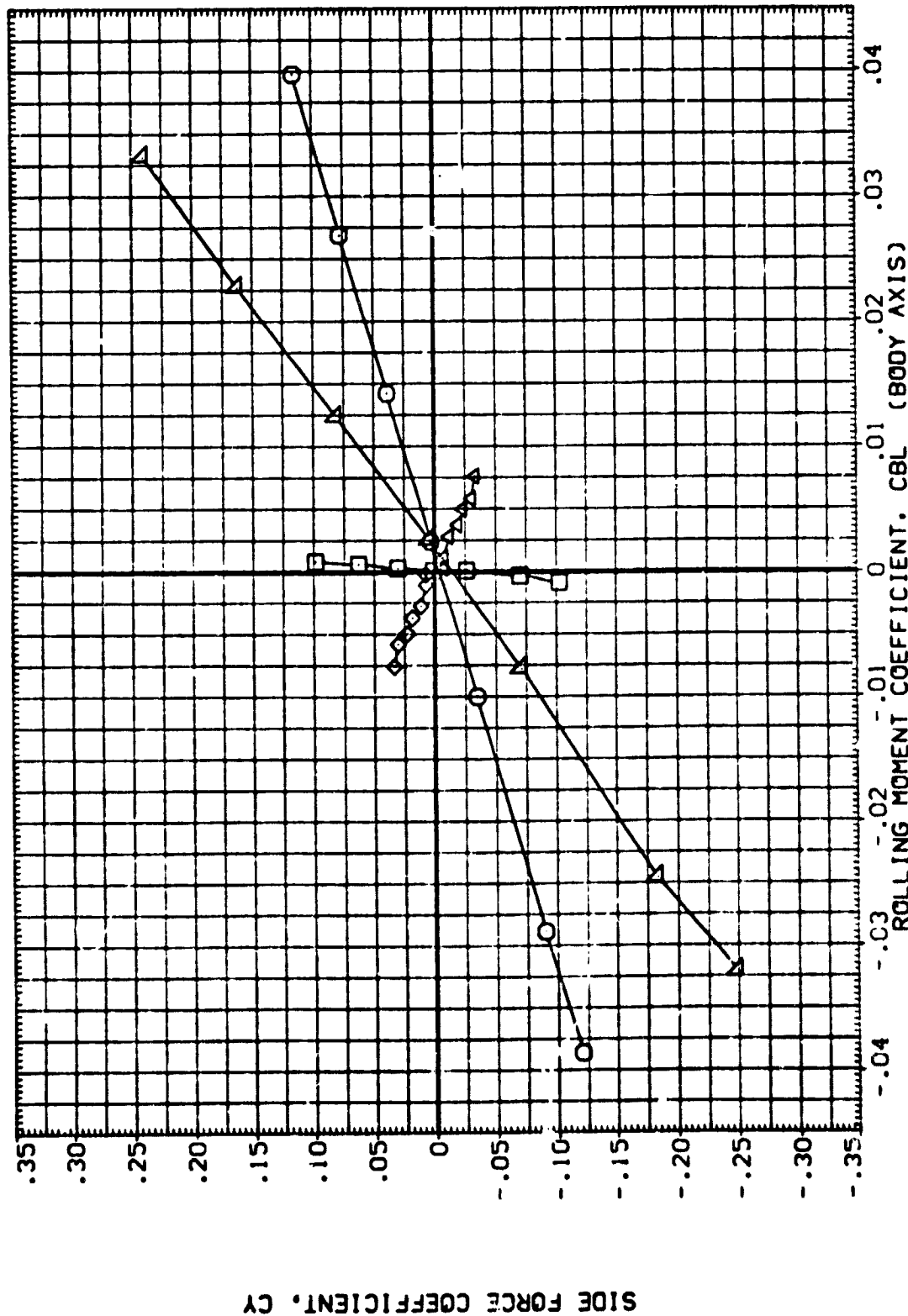


FIG. 24 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LET047)	APES97-019C(1A81) LVAP ORBITER-ALL ML SEALED	10.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(LET147)	APES97-019C(1A81) LVAP TANK - ALL ML SEALED	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LET147)	APES97-019C(1A81) LVAP L-SRB - ALL ML SEALED	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LET147)	APES97-019C(1A81) LVAP R-LRB - ALL ML SEALED	10.000	-4.000	2.000	.000	AMRP 976.0000 IN.
(LET147)	APES97-019C(1A81) LVAP INT VEH ALL ML SEALED	10.000	-4.000	2.000	.000	VMRP 400.0000 IN.
						SCALE 5000

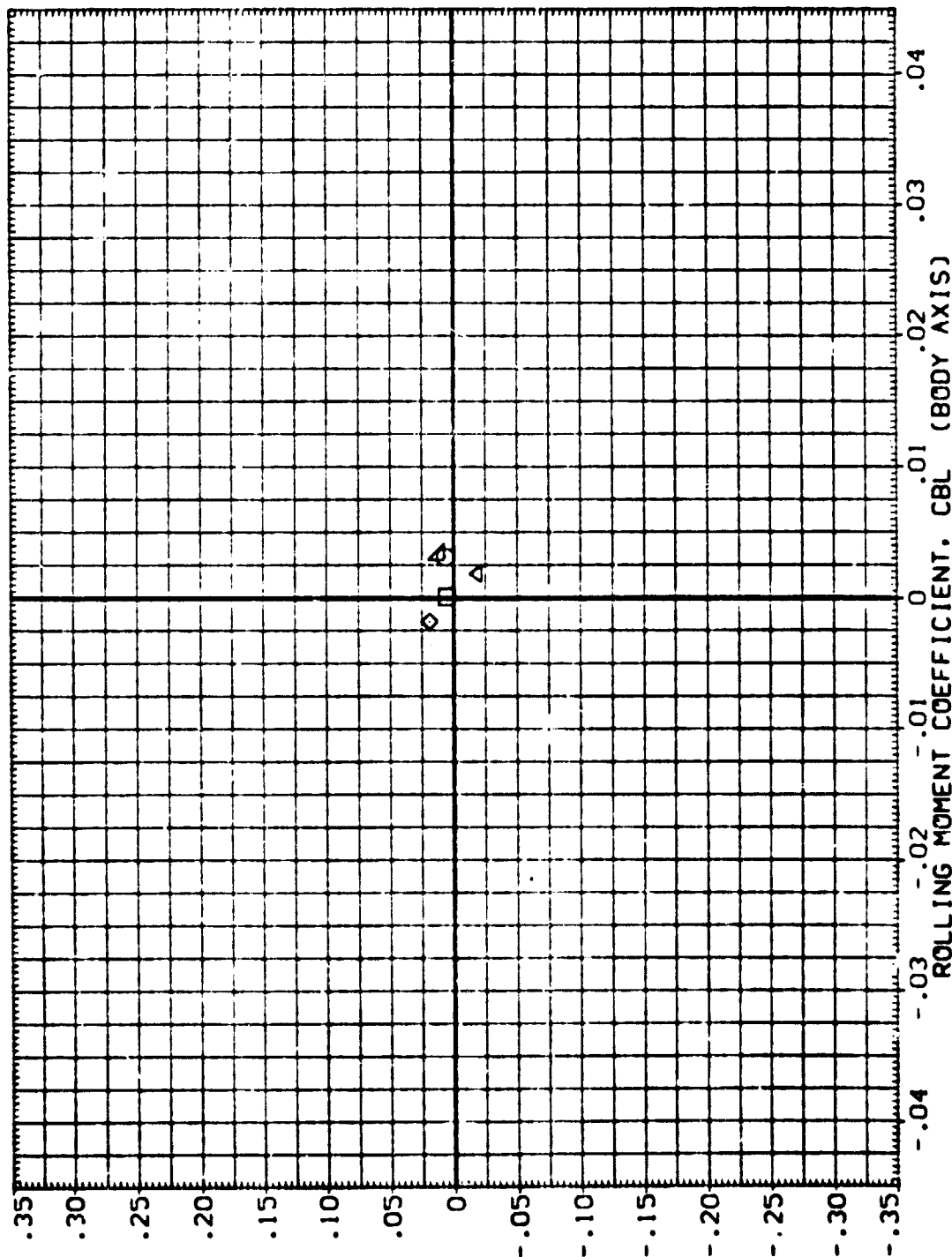


FIG. 24 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4
(α)=2.00 PAGE 590

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-DB	MACH	SPOBRK	REFERENCE INFORMATION
(LE1047)	AMES97-019(1A81) LVAP	10.000	-4.000	2.000	.000	SREF 2690.0000 SO.FT.
(LE1147)	AMES97-019(1A81) LVAP	10.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(LE1147)	AMES97-019(1A81) LVAP	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(LE1147)	AMES97-019(1A81) LVAP	10.000	-4.000	2.000	.000	YMRP 976.0000 IN. XT
(LE1147)	AMES97-019(1A81) LVAP	10.000	-4.000	2.000	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

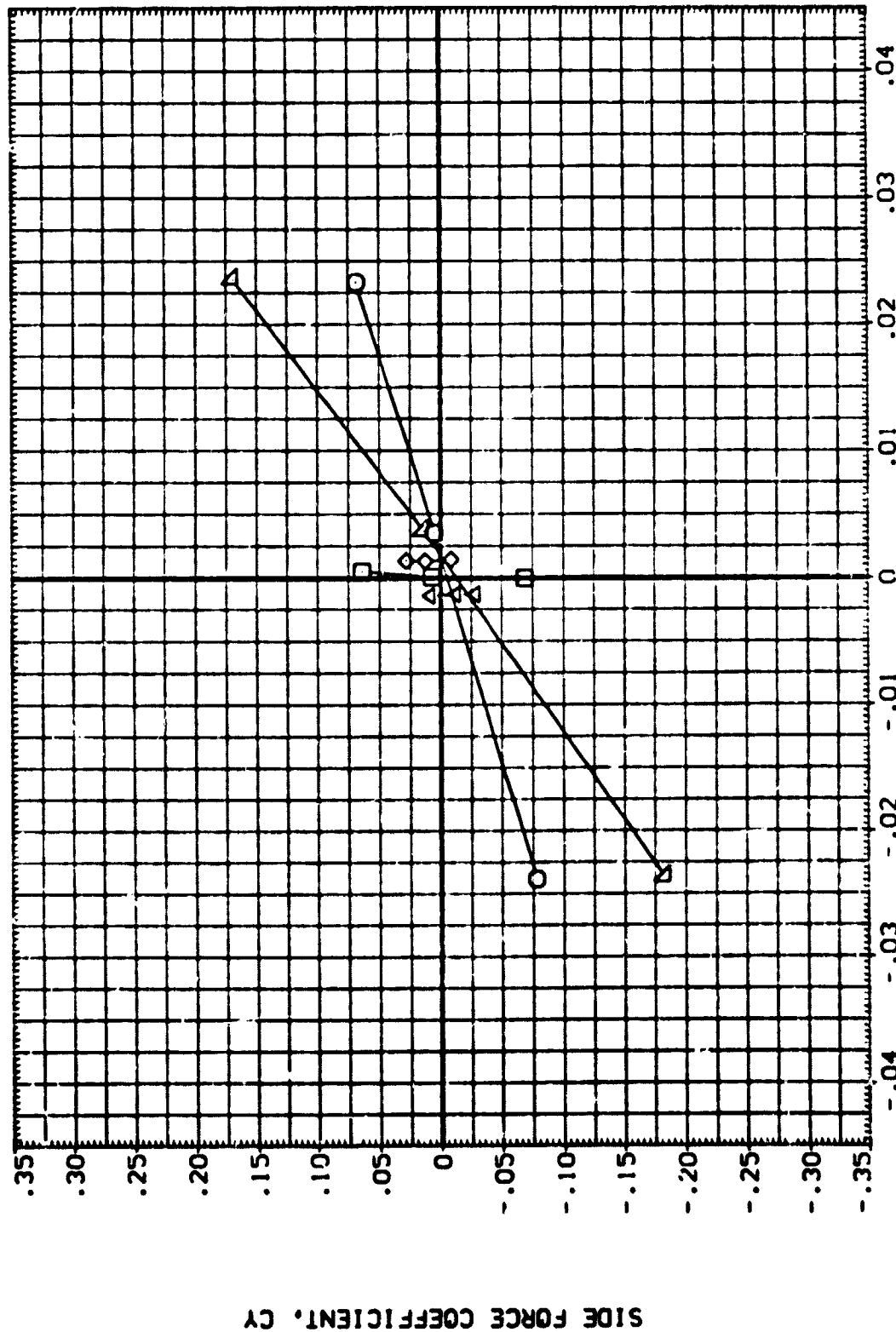


FIG. 24 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4
(F)ALPHA= 4.00 PAGE 591

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION	SD.FT.
(LET047)	AMES97-0191(A81) LVAP D-1 ER-ALL ML SEALED	10.000	-4.000	2.000	.000	S-REF	2690.0000
(LET147)	AMES97-0191(A81) LVAP TANK - ALL ML SEALED	10.000	-4.000	2.000	.000	L-REF	1297.0000
(LET147)	AMES97-0191(A81) LVAP L-CRB - ALL ML SEALED	10.000	-4.000	2.000	.000	B-REF	1297.0000
(LET147)	AMES97-0191(A81) LVAP R-LRB - ALL ML SEALED	10.000	-4.000	2.000	.000	XMRP	976.0000
(LET147)	AMES97-0191(A81) LVAP INT VEH ALL ML SEALED	10.000	-4.000	2.000	.000	ZMRP	400.0000
						SCALE	.0300

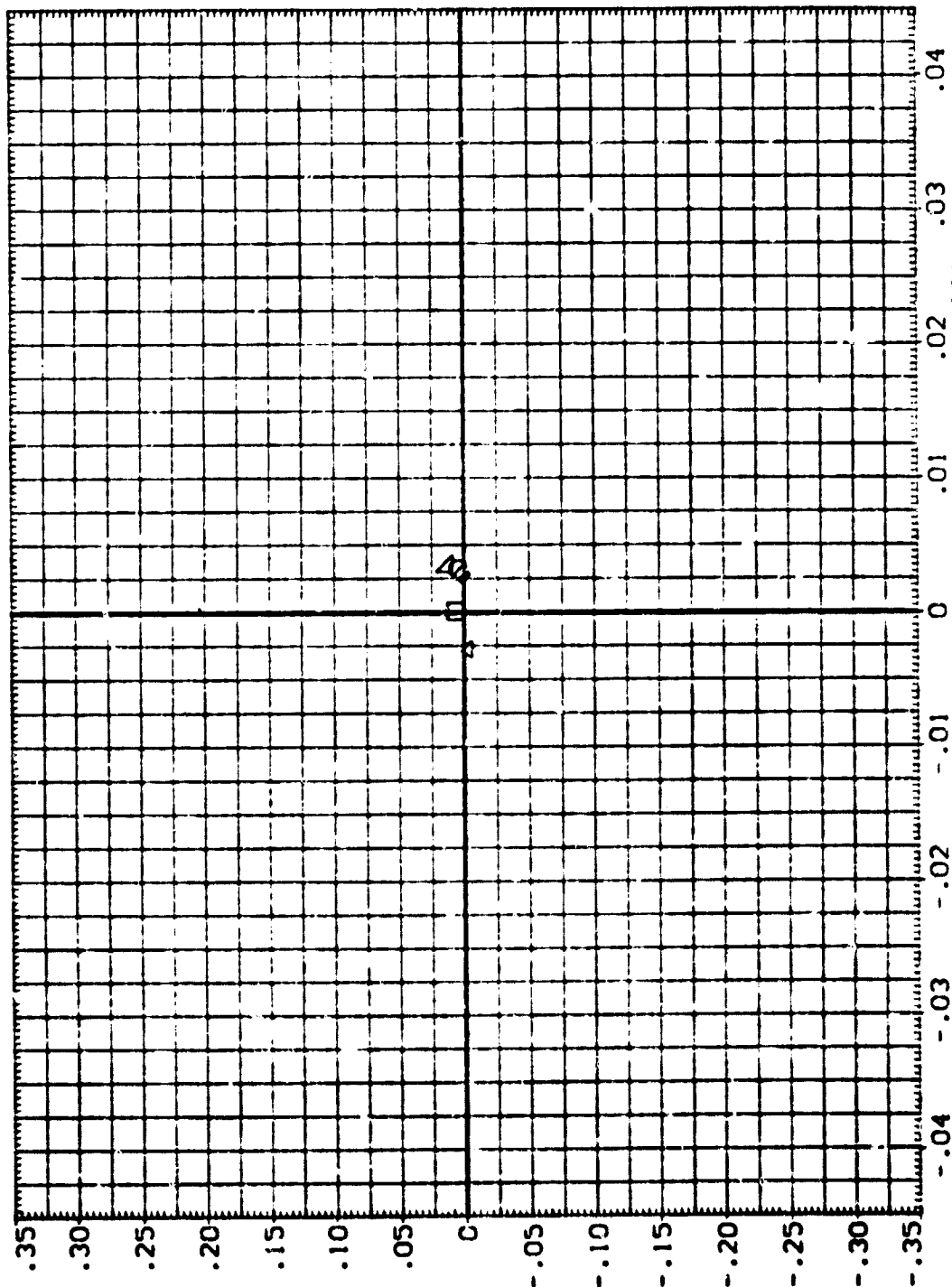


FIG. 24 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.0 DEV=10/-4
(G) ALPHA= 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPOBRK	REFERENCE INFORMATION
(LE1037)	AMES97-019(IAB1) LVAP ORBITTER-ALL ML SFALED	8.000	-4.000	2.200	.000	SREF 2690.0000 SO.FT.
(LE1137)	AMES97-019(IAB1) LVAP TANK - ALL ML SFALED	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(LE1237)	AMES97-019(IAB1) LVAP L SRB - ALL ML SFALED	8.000	-4.000	2.200	.000	BREF 1297.0000 IN.
(LE1337)	AMES97-019(IAB1) LVAP R-4RB ALL ML SFALED	8.000	-4.000	2.200	.000	YMRP 976.0000 IN.
(LE1437)	AMES97-019(IAB1) LVAP INT VEH ALL ML SFALED	8.000	-4.000	2.200	.000	ZMRP 400.0000 IN.
						SCALE .0300

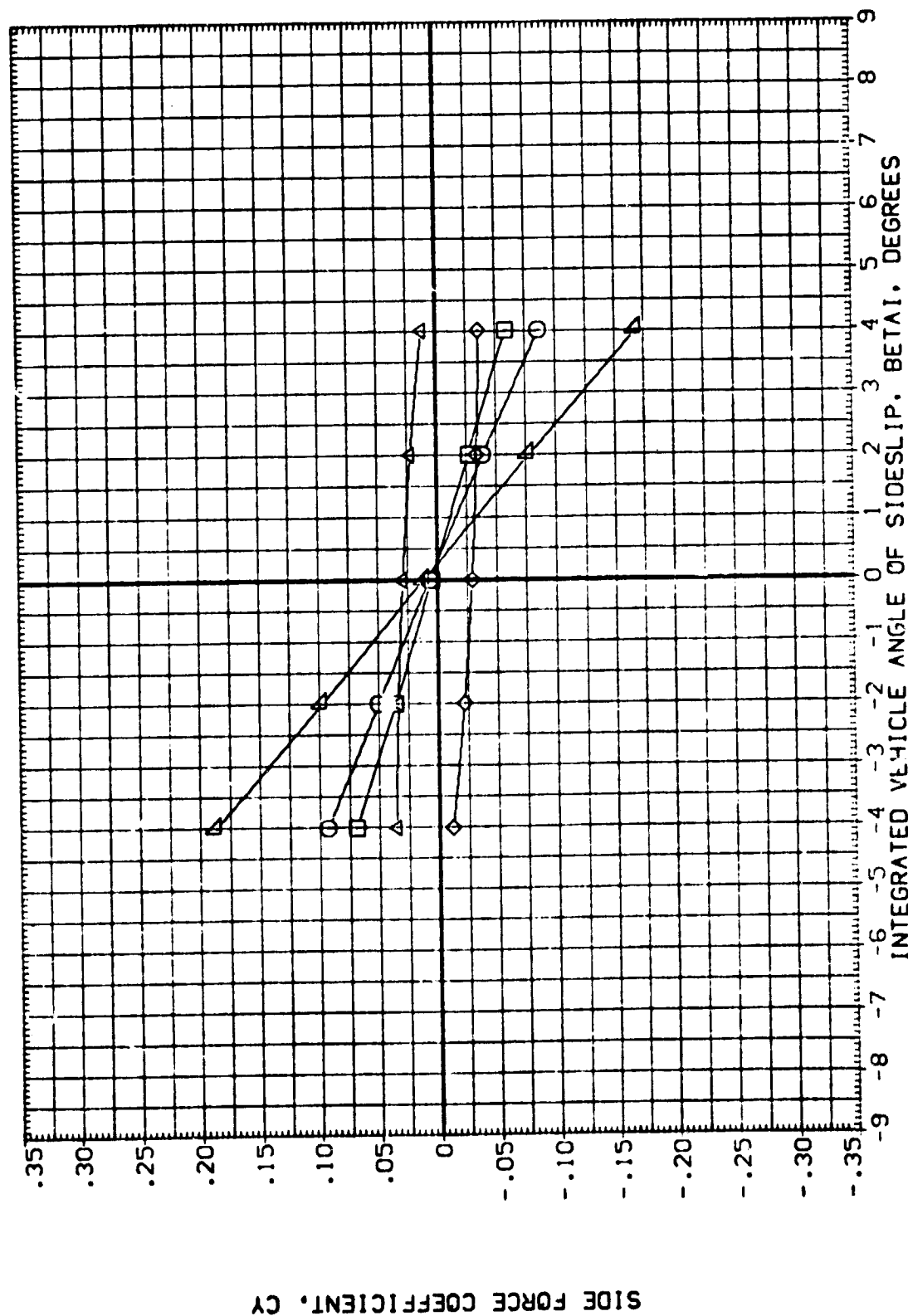


FIG. 25 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4

(A) ALPHA = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPOBRK	REFERENCE INFORMATION
(LET037)	AMES97-019(IAB1) LVAP CRBITER-ALL HL SEALED	8.000	-4.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LET137)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(LET237)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.200	.000	BREF 1297.0000 IN.
(LET337)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.200	.000	XMRP 976.0030 IN. XT
(LET437)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.200	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

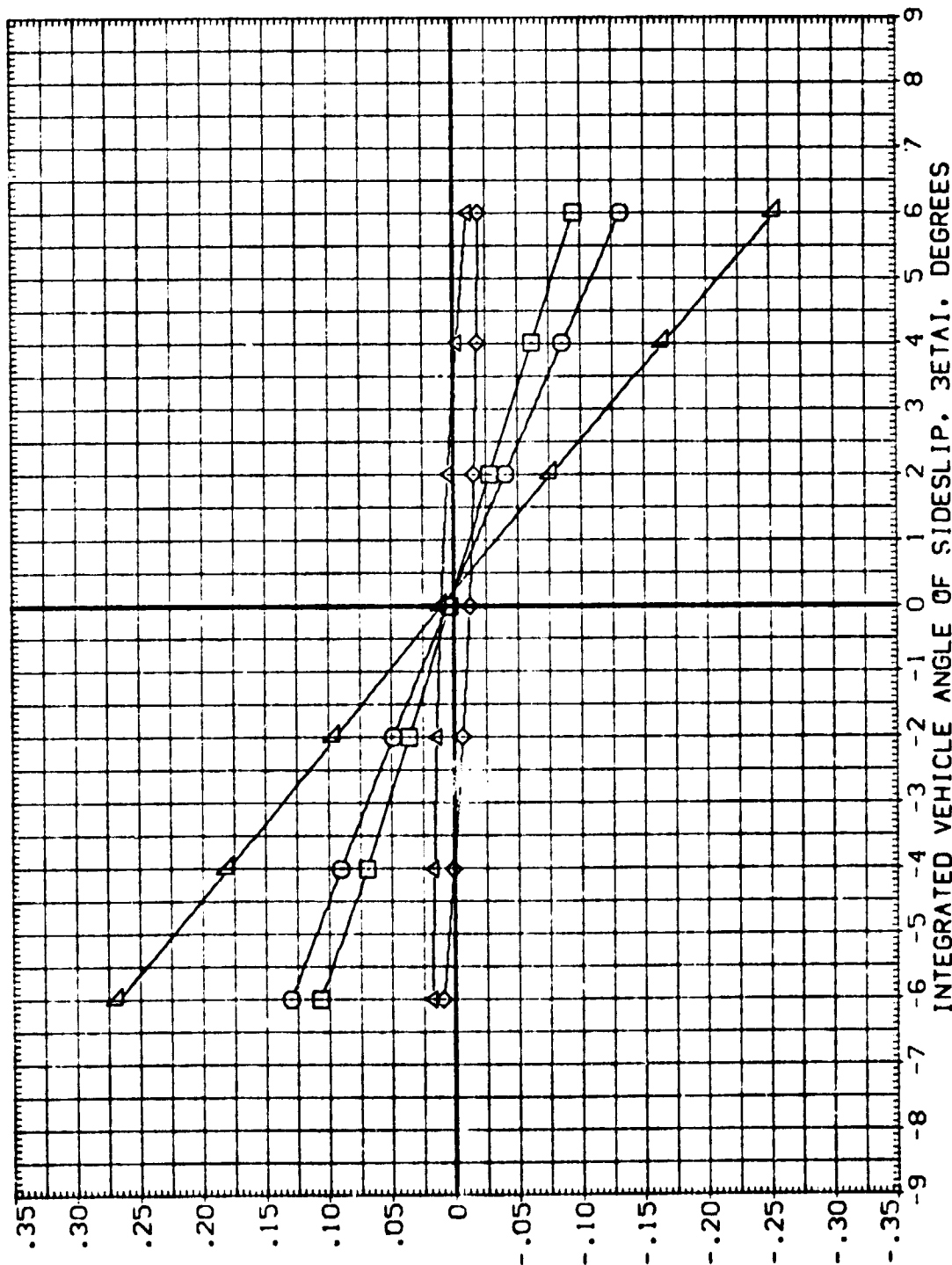


FIG. 25 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4

(B)ALPHA= -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LE037)	AMES97-019(IAB1) LVAP ORBITTER-ALL HL SEALED	9.000	-4.200	2.200	.000	SREF 2690.0000 SQ.FT.
(LE1137)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(LE1137)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.200	.000	BREF 1297.0000 IN.
(LE1137)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	8.000	-4.000	2.200	.000	XMRP 976.0000 IN.
(LE1137)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.200	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCAL. 0.0300

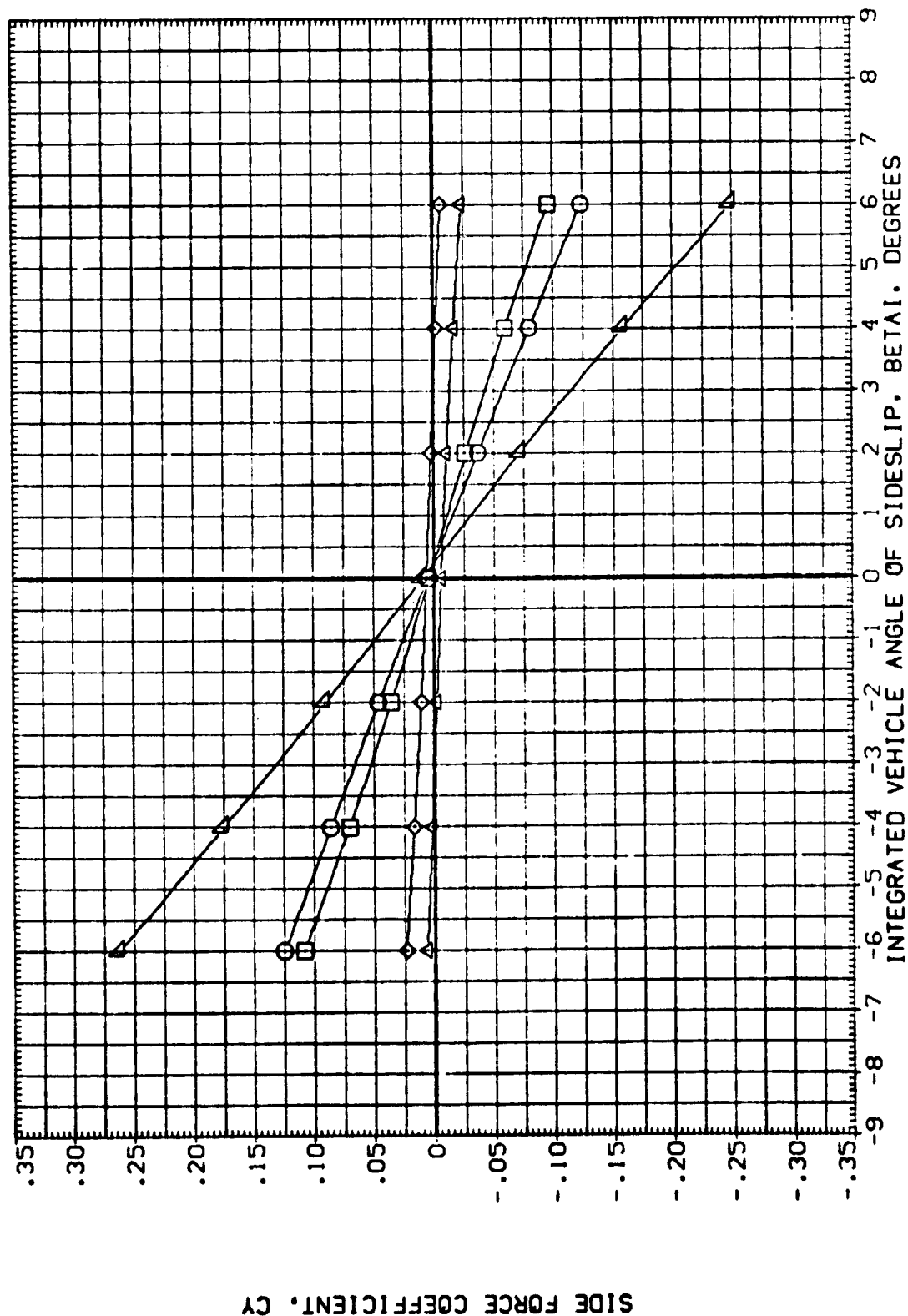


FIG. 25 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=2.2$ $DEV=8/-4$

(C)ALPHA1= -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SFCBRK	REFERENCE INFORMATION
(LET037)	AMES97-0191(A81) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LET137)	AMES97-0191(A81) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(LET137)	AMES97-0191(A81) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.200	.000	BREF 1297.0000 IN.
(LET137)	AMES97-0191(A81) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.200	.000	AMRP 976.0000 IN.
(LET137)	AMES97-0191(A81) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.200	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

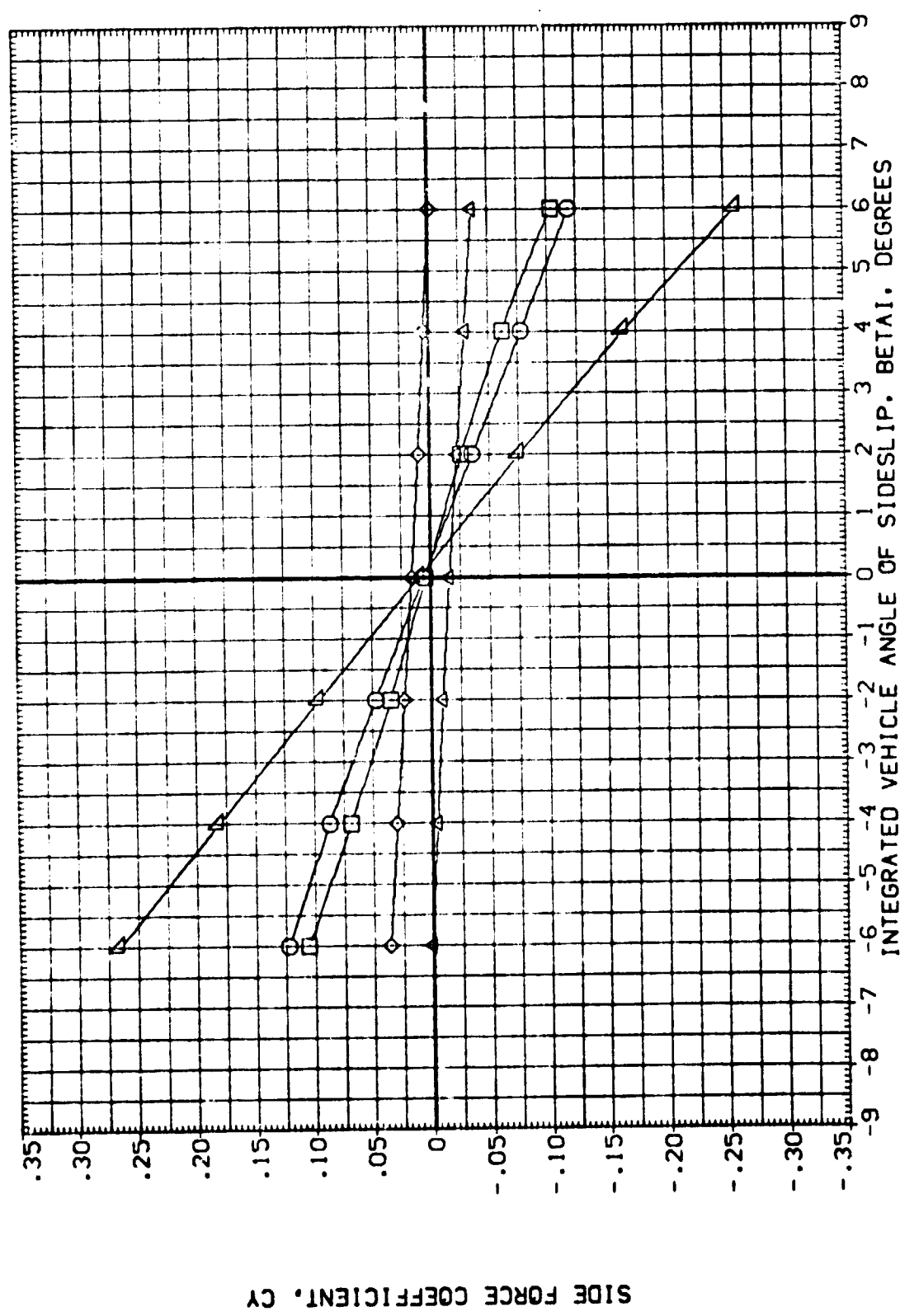


FIG. 25 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4
 (D)ALPHA= .00
 PAGE 596

REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(LE1037)	□	AMES97-019(1A81) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LE1137)	○	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(LE1337)	△	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.200	.000	BREF 1297.0000 IN.
(LE1437)	◇	AMES97-019(1A81) LVAP R-LRB ALL HL SEALED	8.000	-4.000	2.200	.000	XHRP 976.0000 IN. XT
(LE1537)	×	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.200	.000	YHRP 400.0000 IN. YT
							SCALE .0300

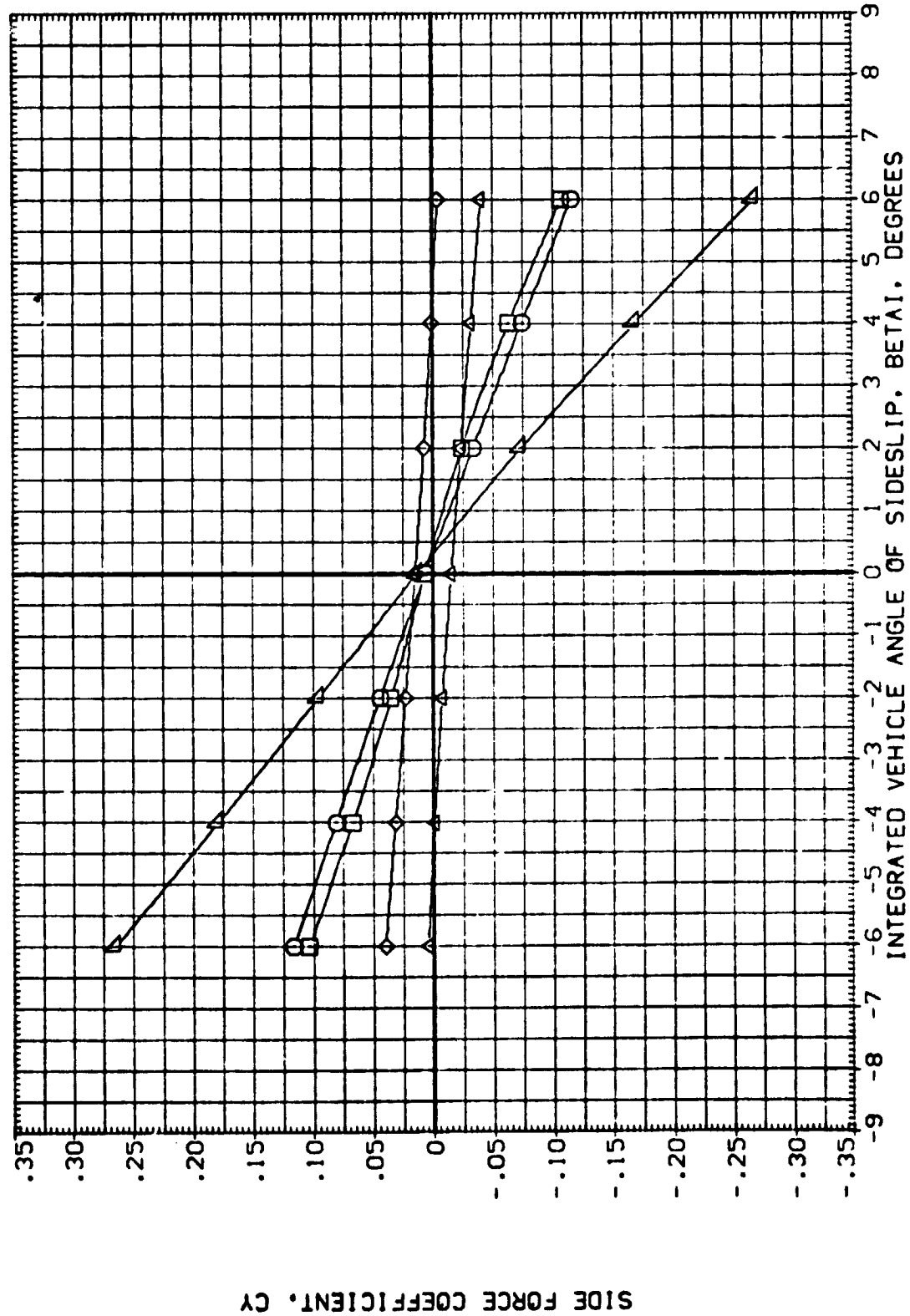


FIG. 25 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=2.2$ $DEV=8/-4$
(E) ALPHA = 2.00

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SFDBRK	REFERENCE INFORMATION
(LET037)	□	AMES97-019(IAB1) LVAP ORBITTER-ALL HL SEALED	8.000	-4.000	2.200	.000	SREF 2690.0000 SO.FT.
(LET137)	○	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(LET137)	△	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.200	.000	BREF 1297.0000 IN.
(LET137)	◇	AMES97-019(IAB1) LVAP R-LPB ALL HL SEALED	8.000	-4.000	2.200	.000	XMRP 976.0000 IN.
(LET137)	×	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.200	.000	YMRP .0000 IN.
							ZMRP 400.0000 IN.
							SCALE .0300

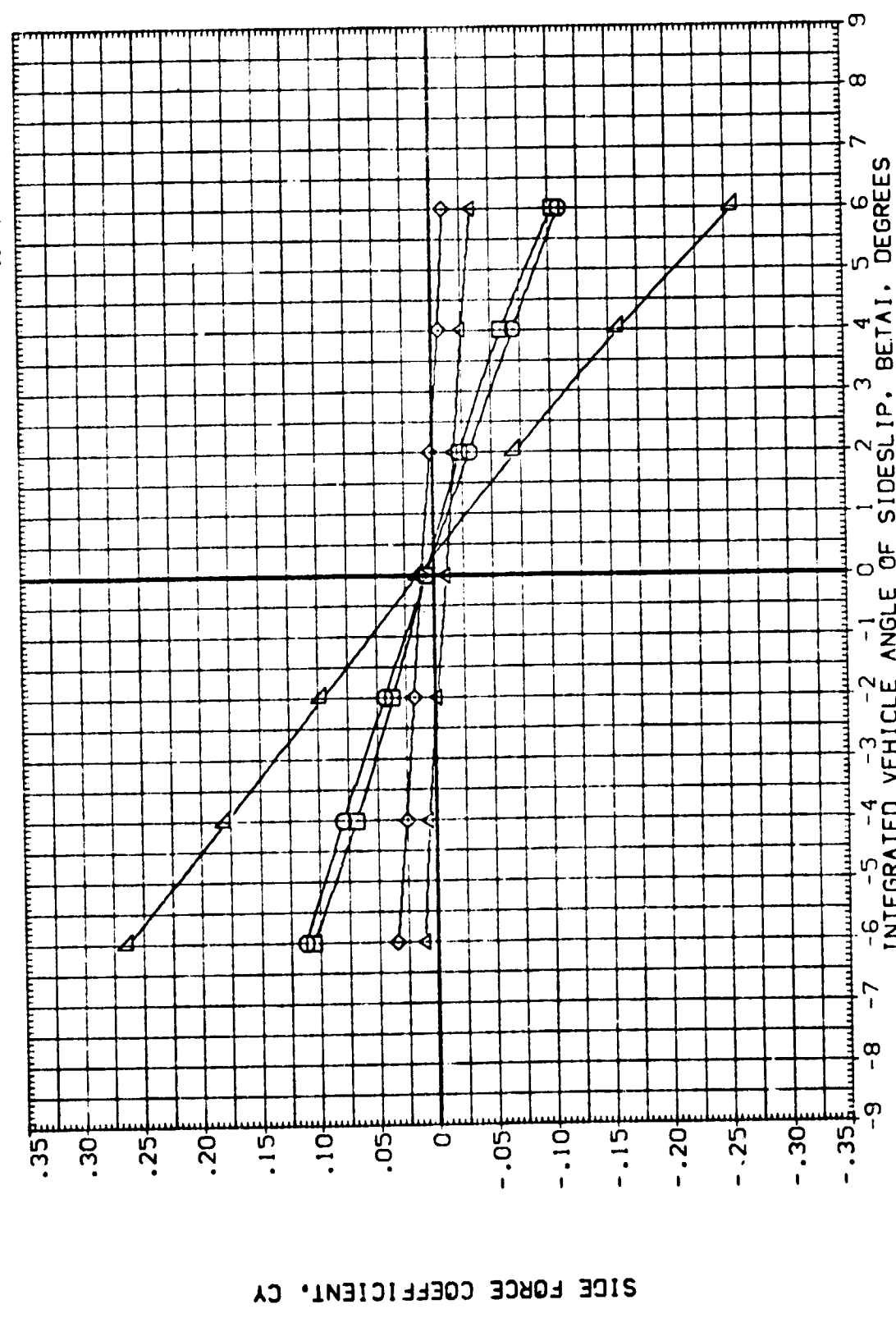


FIG. 25 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=2.2$ $DEV=8/-4$
 (F)ALPHA1= 4.00 PAGE 598

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDBRK	REFERENCE INFORMATION
(LE1037)	AMES97-019(IAB1) LVAP CRB:TER-ALL HL SEALED	8.000	-4.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LE1137)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(LE1237)	AMES97-019(IAB1) LVAP L-SPB - ALL HL SEALED	8.000	-4.000	2.200	.000	SREF 1297.0000 IN.
(LE1337)	AMES97-019(IAB1) LVAP R-LP3 ALL HL SEALED	8.000	-4.000	2.200	.000	XMRP 976.0000 IN. XT
(LE1437)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.200	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

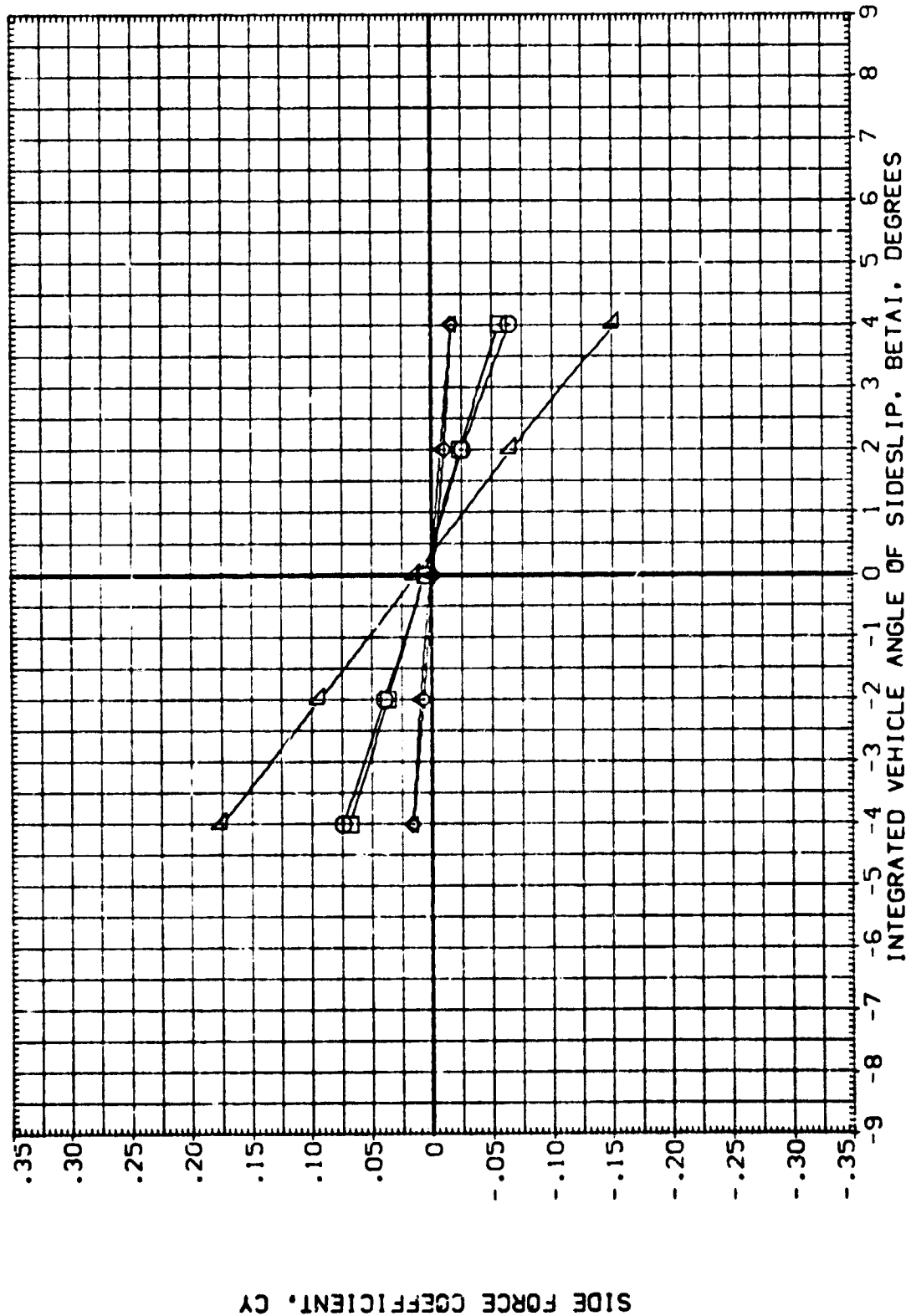


FIG. 25 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4
(G)ALPHA= 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-19	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION	SO.FT.
(LETO37)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.200	.000	SREF 2690.0000	IN.
(LETT37)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.200	.000	LREF 1297.0000	IN.
(LETL37)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.200	.000	BREF 1297.0000	IN.
(LETR37)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.200	.000	YMRP 976.0000	IN.
(LETT37)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.200	.000	ZMRP 400.0000	IN.
						SCALE	.0300

FOREBODY YAWING MOMENT COEFFICIENT, CYNF

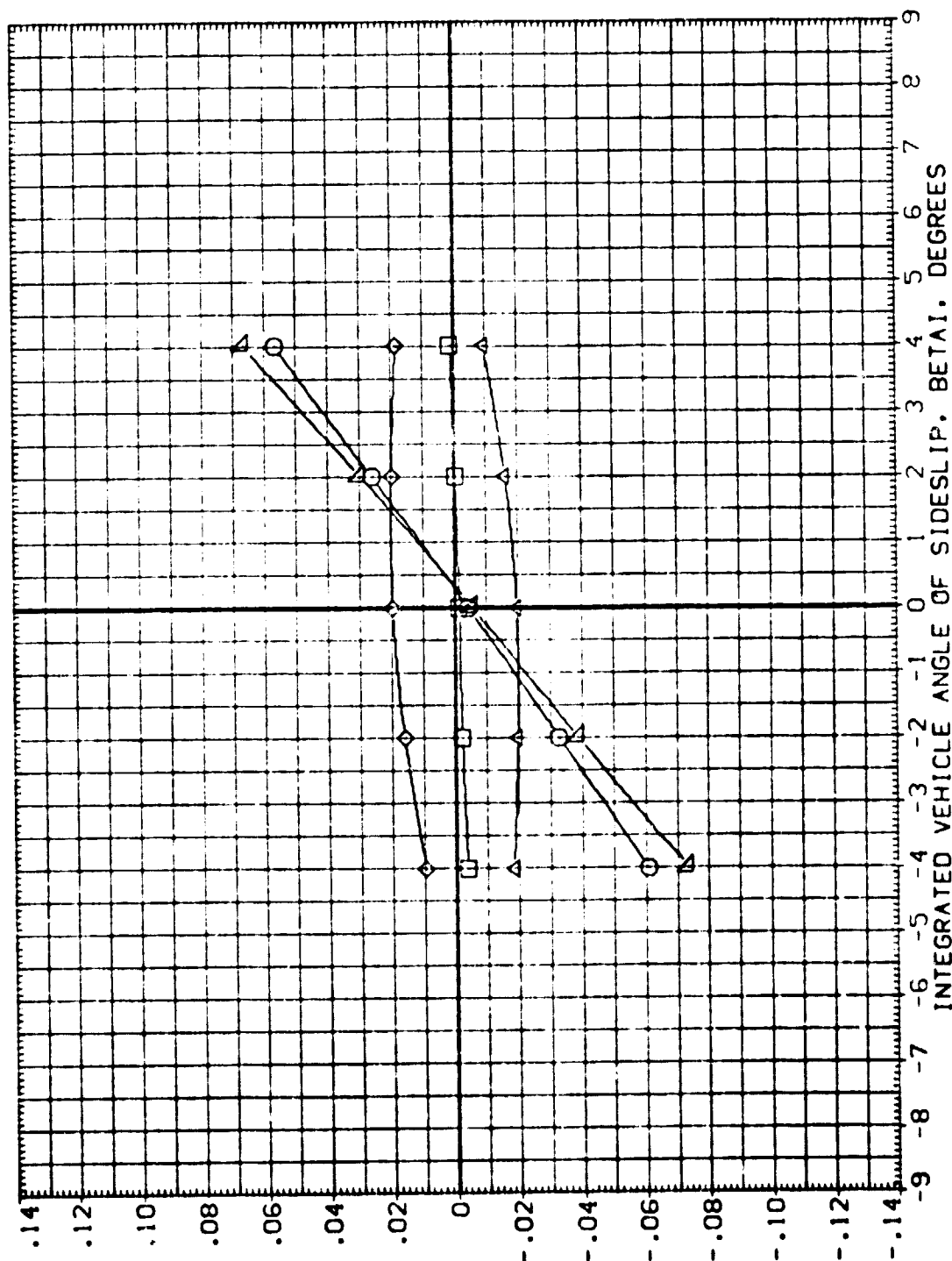


FIG. 25 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4

(A) ALPHA = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LE1037)	AMES97-019(1A81) LVAP CRB1TER-ALL HL SEALED	8.000	-4.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LE1137)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(LE1237)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.200	.000	BREF 1297.0000 IN.
(LE1337)	AMES97-019(1A81) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.200	.000	YHRP 976.0000 IN.
(LE1437)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.200	.000	ZHRP 400.0000 IN.
						SCALE .0300

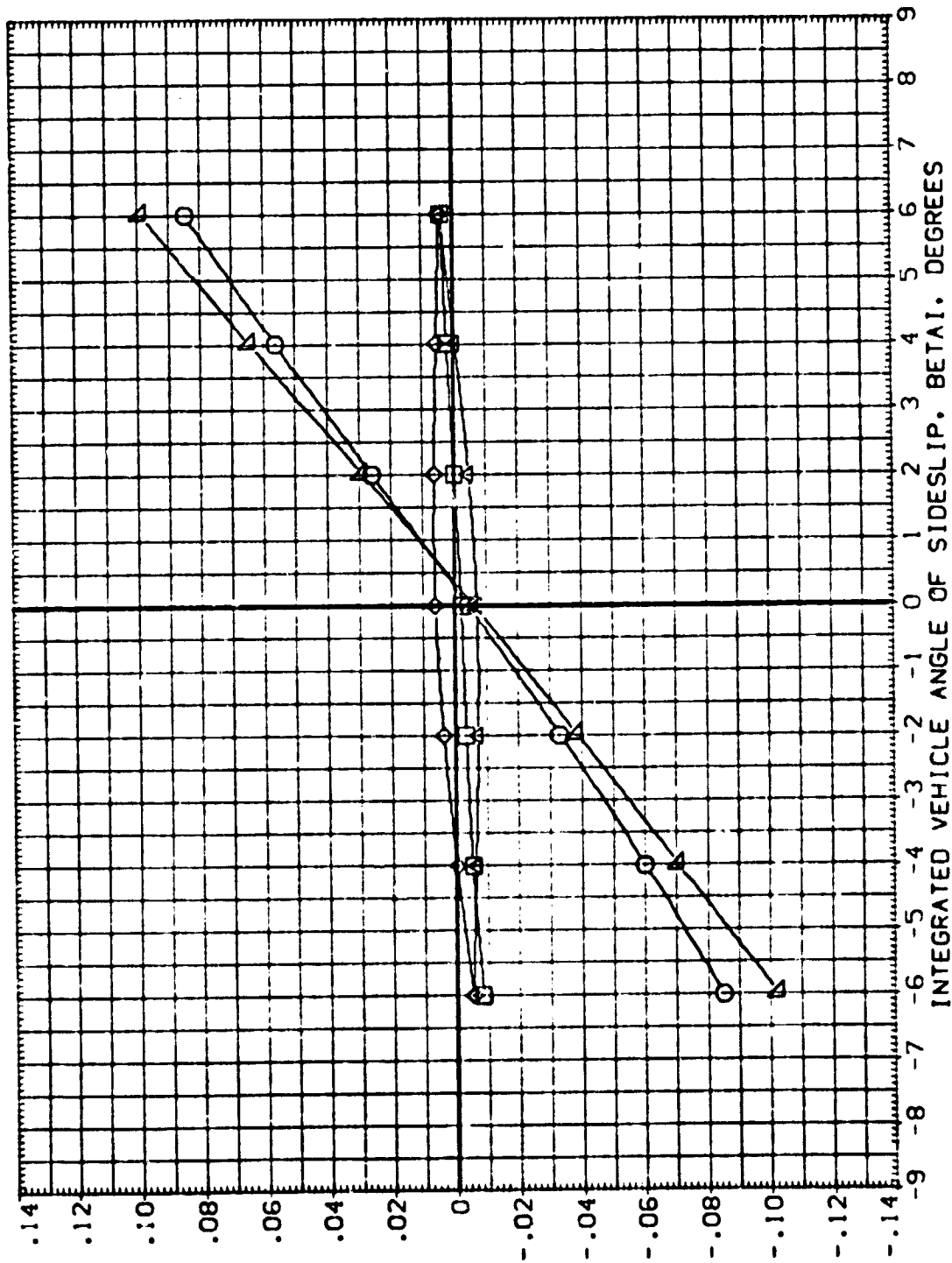


FIG. 25 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4

(B) ALPHA = -4.00

DATA SET SYMBOL: (LETO37) (LETT37) (LETL37) (LETR37) (LEVI37)

CONFIGURATION DESCRIPTION: AMES97-0191(A81) LVAP TANK - ALL WL SEALED AMES97-0191(A81) LVAP L-508 - ALL WL SEALED AMES97-0191(A81) LVAP R-108 - ALL WL SEALED AMES97-0191(A81) LVAP INT VEM ALL WL SEALED

ELV-1B: 8.000 8.000 8.000 8.000 8.000

ELV-0B: -4.000 -4.000 -4.000 -4.000 -4.000

MACH: 2.200 2.200 2.200 2.200 2.200

SPDRK: .000 .000 .000 .000 .000

REFERENCE INFORMATION: SREF 2690.0000 SO.FT. 1297.0000 LREF 1297.0000 N. 976.0000 BREF 976.0000 N. 400.0000 XMRP 400.0000 N. 400.0000 YMRP 400.0000 N. 400.0000 ZMRP 400.0000 N. 400.0000 SCALE .0300

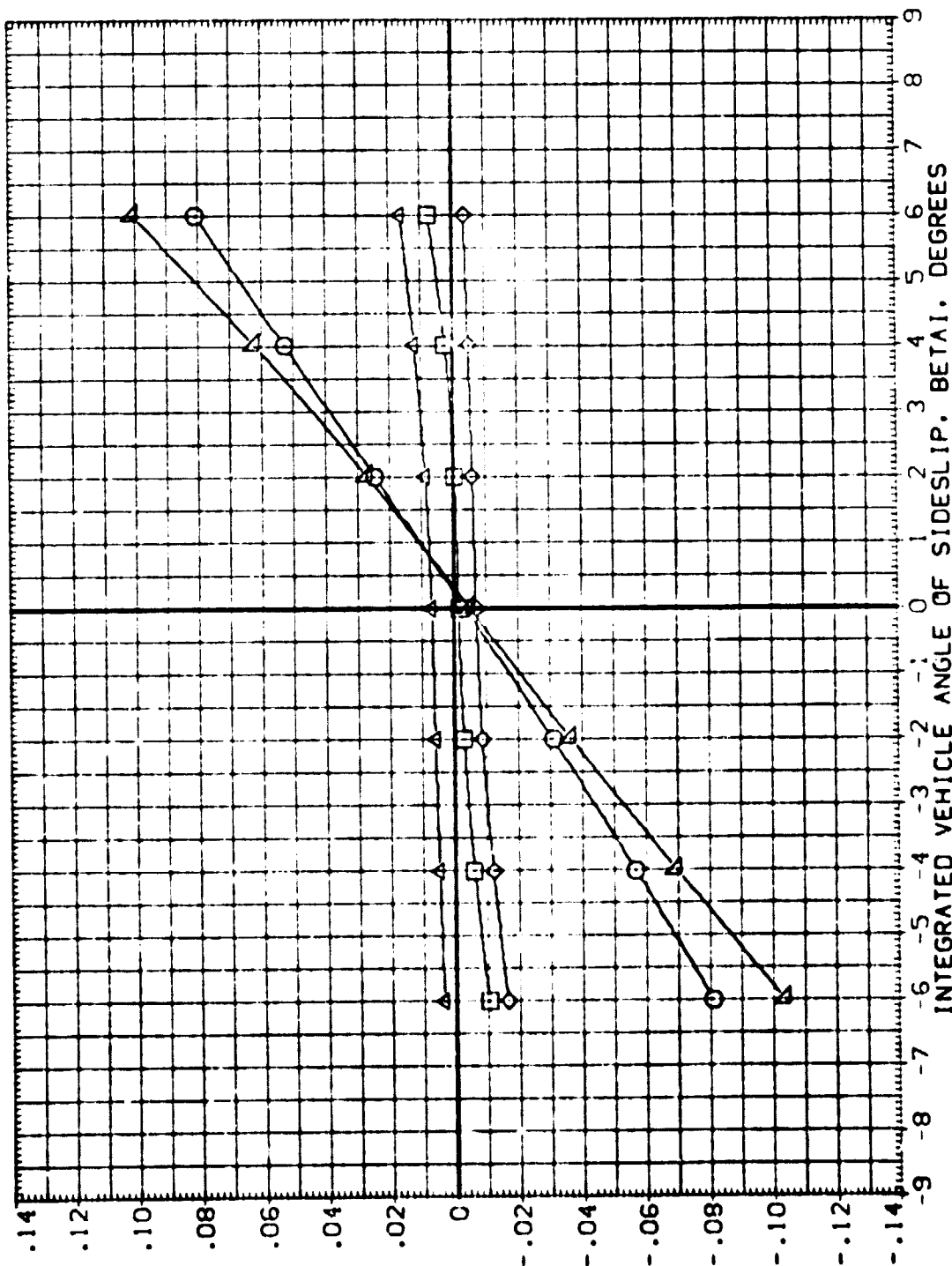


FIG. 25 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4

(C)ALPHAI= -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(LE1037)	ANE597-019(IAB1) LVAP CRBITER-ALL ML SEALED	8.000	-4.000	2.200	.000	SREF 2690.0000 SO.FT.
(LE1137)	ANE597-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(LE1237)	ANE597-019(IAB1) LVAP L-SP8 - ALL ML SEALED	8.000	-4.000	2.200	.000	BREF 1297.0000 IN.
(LE1337)	ANE597-019(IAB1) LVAP R-LRB - ALL ML SEALED	8.000	-4.000	2.200	.000	XMRP 976.0000 IN. X7
(LE1437)	ANE597-019(IAB1) LVAP INT VEH - ALL ML SEALED	8.000	-4.000	2.200	.000	YMRP 400.0000 IN. Y7
						ZMRP 400.0000 IN. Z7
						SCALE .0300

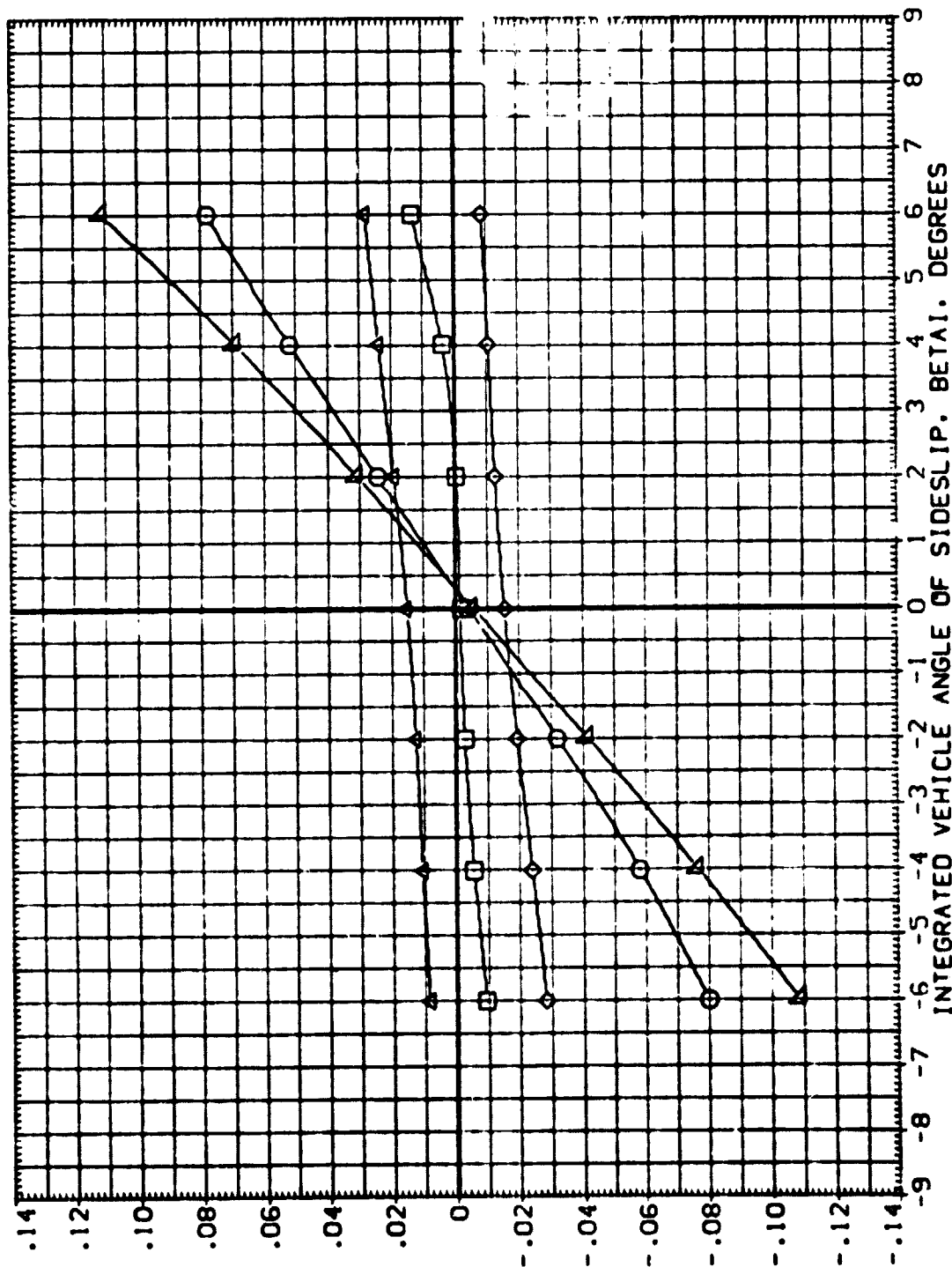


FIG. 25 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4

(D)ALPHA1= .00

DATA SET SYMBOL
(LE1037)
(LE1137)
(LE1237)
(LE137)
(LE137)

CONFIGURATION DESCRIPTION
AMES97-019(IAB1) LVAP
AMES97-019(IAB1) LVAP
AMES97-019(IAB1) LVAP
AMES97-019(IAB1) LVAP
AMES97-019(IAB1) LVAP

ORBITER-ALL ML SEALED
TANKS - ALL ML SEALED
L-SRB - ALL ML SEALED
R-LRB - ALL ML SEALED
INT VEH ALL ML SEALED

ELV-18 8.000
ELV-08 -4.000
MACH 2.200
SPDBK .000

REFERENCE INFORMATION
SREF 2690.0000 SQ.FT.
LREF 1297.0000 IN.
BREF 1297.0000 IN.
XHP 976.0000 IN.
YHP 400.0000 IN.
ZHP 400.0000 IN.
SCALE .0100

FOREBODY YAWING MOMENT COEFFICIENT, C_{MF}

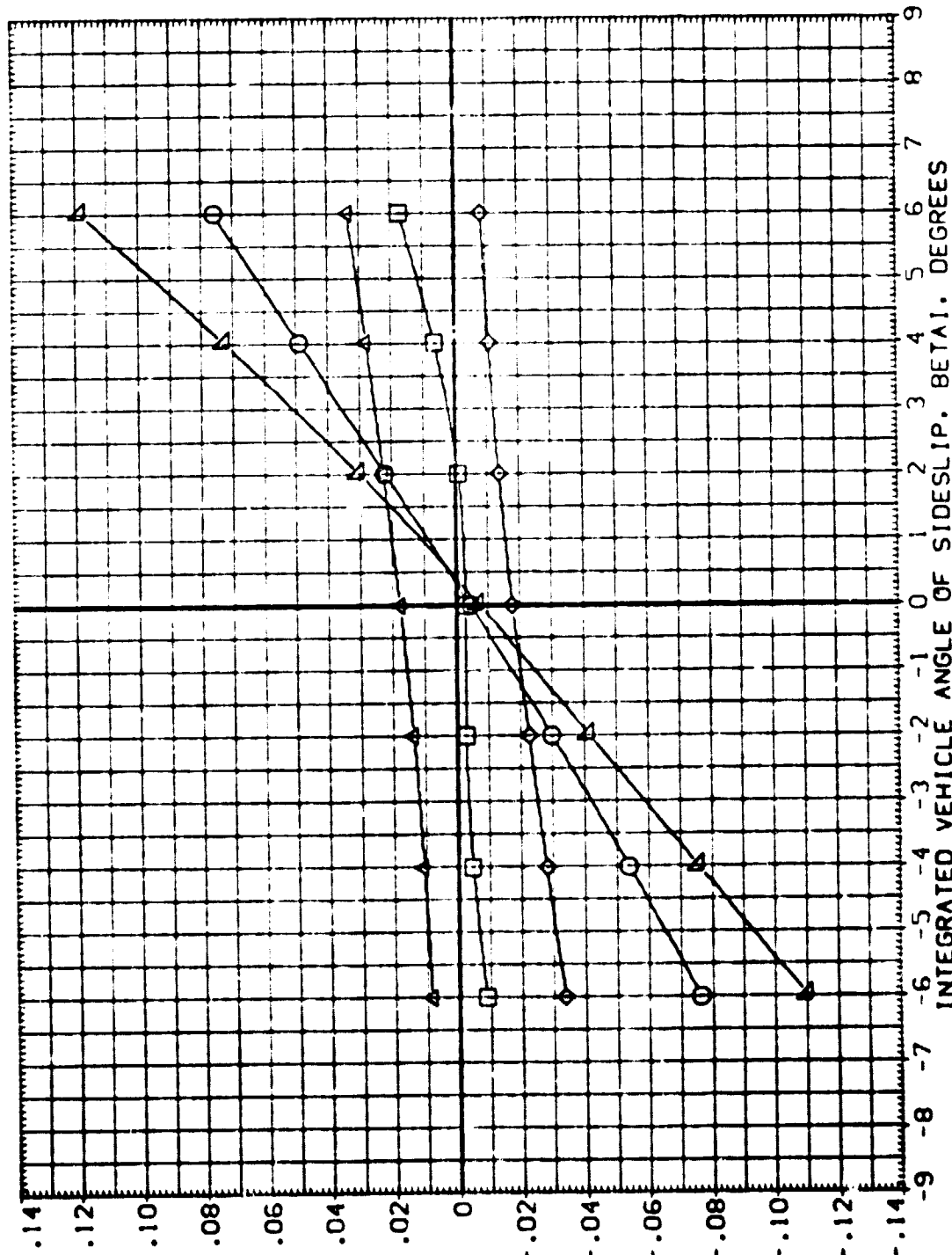


FIG. 25 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4
(E)ALPHA= 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(LETO37)	APES97-019C (AB1) LVAP ORBITER-ALL ML SEALED	8.000	-4.000	4.200	.000	SREF 2690.0000 SO.FT.
(LETL37)	APES97-019C (AB1) LVAP TANK - ALL ML SEALED	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(LETL37)	APES97-019C (AB1) LVAP L-SRB - ALL ML SEALED	8.000	-4.000	2.200	.000	SREF 1297.0000 IN.
(LETR37)	APES97-019C (AB1) LVAP R-SRB - ALL ML SEALED	8.000	-4.000	2.200	.000	YREF 976.0000 IN. Y7
(LETL37)	APES97-019C (AB1) LVAP INT VEH ALL ML SEALED	8.000	-4.000	2.200	.000	ZHRRP 400.0000 IN. Z7
						SCALE .0300

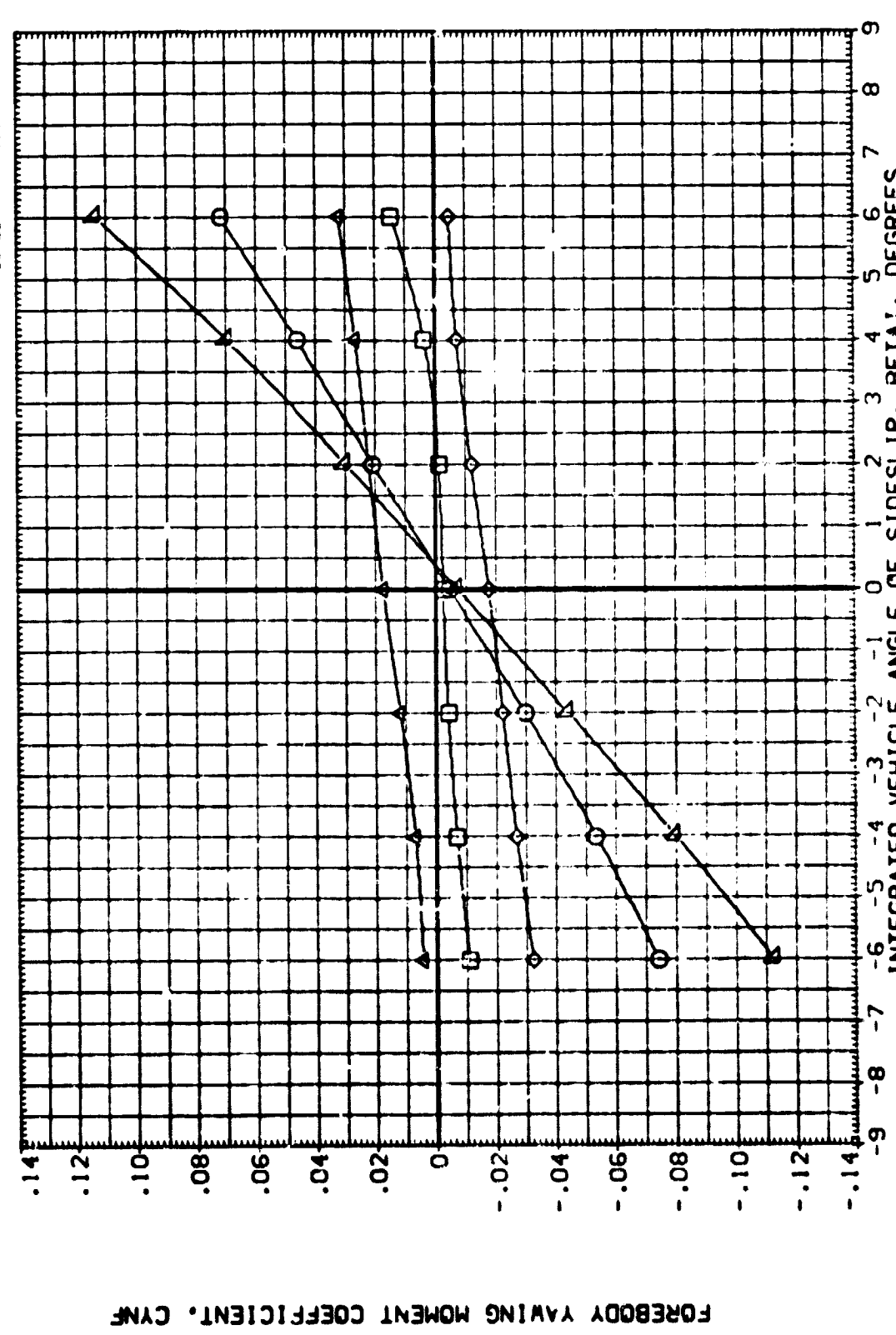


FIG. 25 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4
 (F)ALPHA= 4.00 PAGE 605

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LE1037)	AMES97-019(IAB1) LVAP CPB1TER-ALL HL SEALED	9.000	-4.000	2.200	.000	SREF 2590.0000 SQ.FT.
(LE1137)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(LE1237)	AMES97-019(IAB1) LVAP L-SPB - ALL HL SEALED	8.000	-4.000	2.200	.000	BREF 1297.0000 IN.
(LE1337)	AMES97-019(IAB1) LVAP R-LPB ALL HL SEALED	8.000	-4.000	2.200	.000	XMRP 976.0000 IN.
(LE1437)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.200	.000	YMRP .0000 IN.
(LE1537)						ZMRP 400.0000 IN.
						SCALE .0300

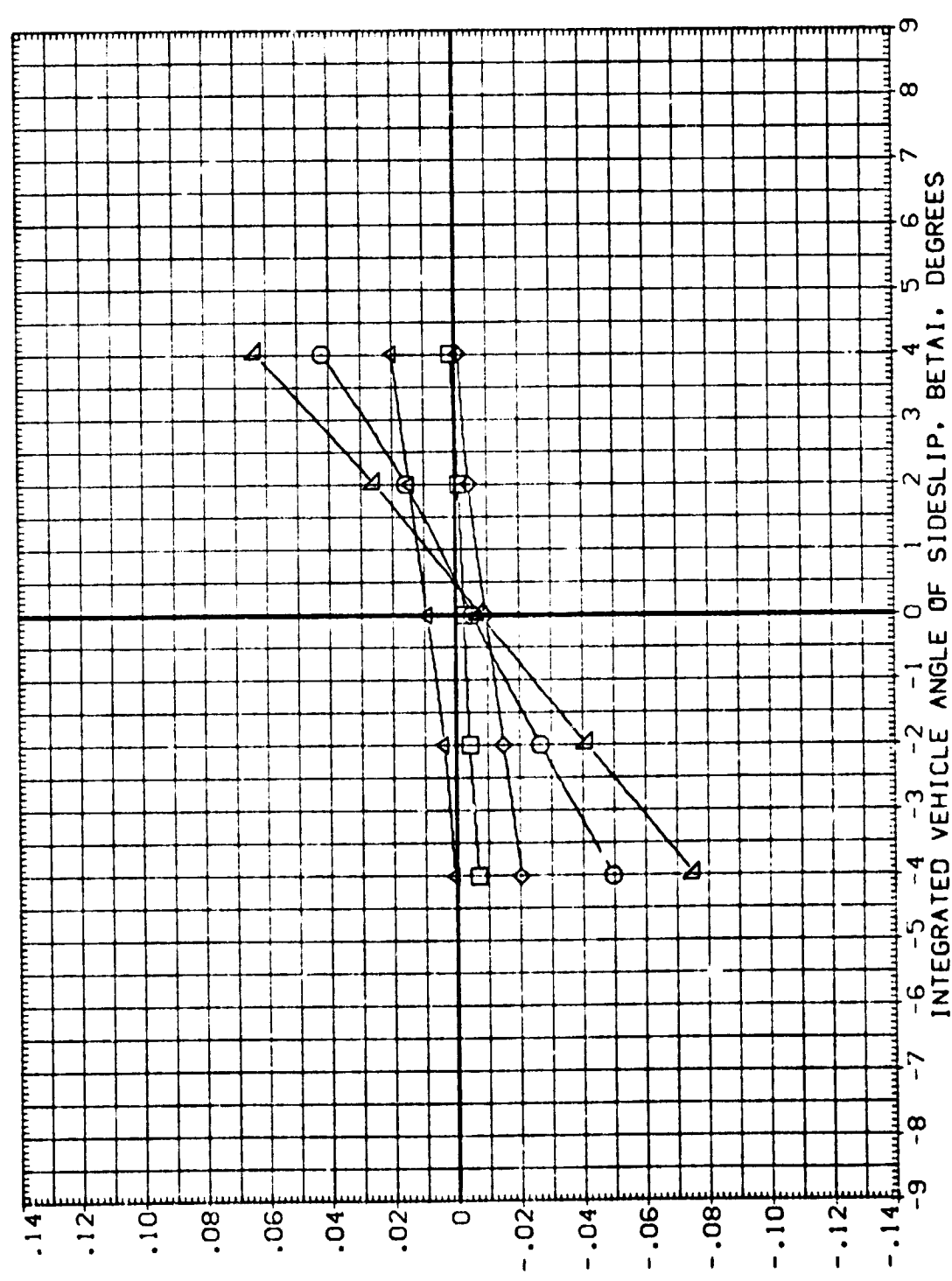


FIG. 25 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS: M=2.2 DEV=8/-4
(G)ALPHA= 6.00 PAGE 606

FOREBODY YAWING MOMENT COEFFICIENT, CYNF

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LET037)	AME597-019(1A81) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.200	.000	SREF 2690.0000 SO.FT.
(LET137)	AME597-019(1A81) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(LET137)	AME597-019(1A81) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.200	.000	GREF 976.0000 IN. XT
(LET137)	AME597-019(1A81) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.200	.000	YMRP .0000 IN. YT
(LET137)	AME597-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.200	.000	ZMRP 400.0000 IN. ZT

SCALE .0300

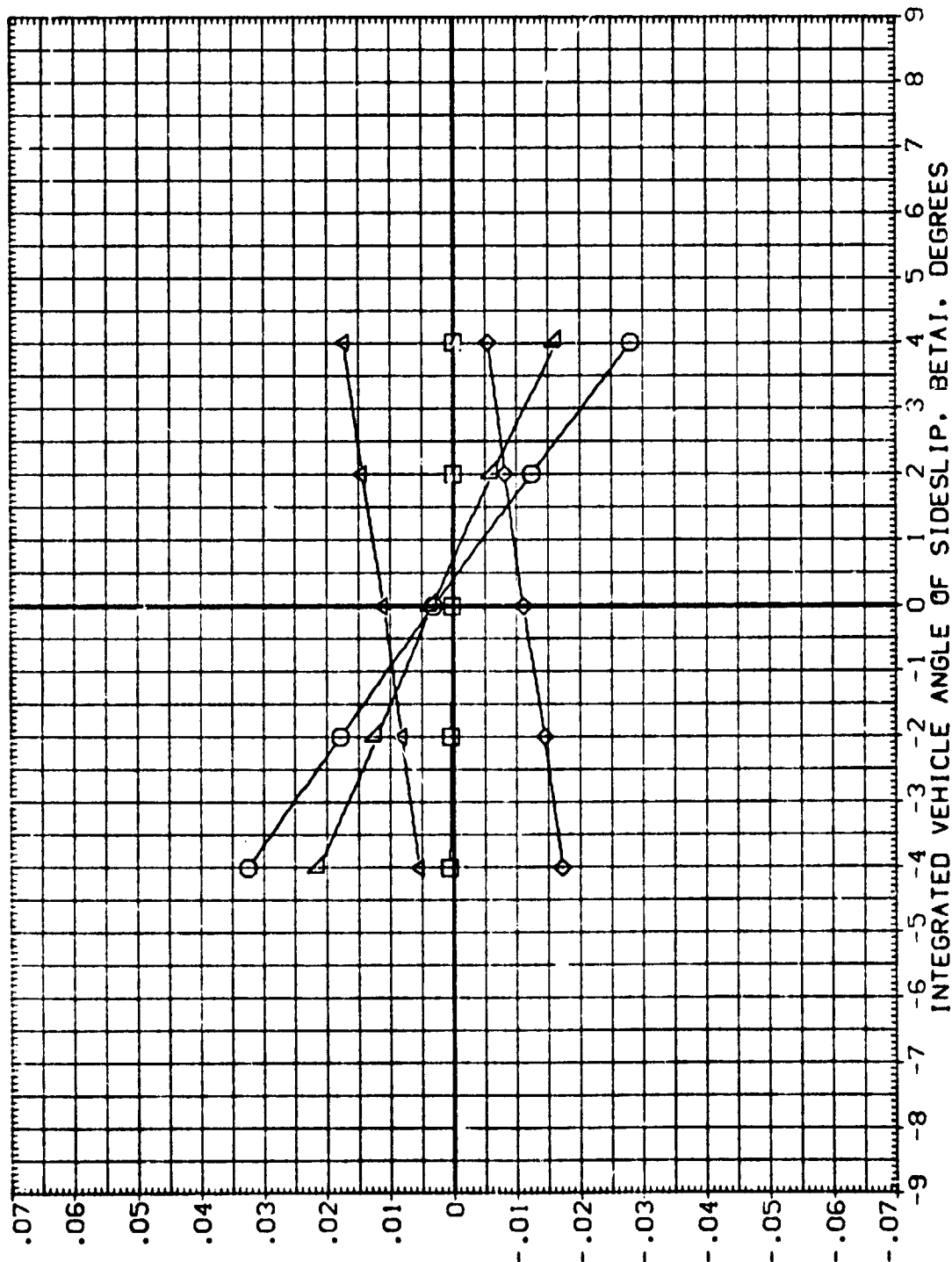


FIG. 25 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4

(A) ALPHA = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LET037)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LET137)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.200	.000	UREF 1297.0000 IN.
(LET137)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.200	.000	BREF 1297.0000 IN.
(LET137)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	8.000	-4.000	2.200	.000	XMRP 976.0000 IN.
(LET137)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.200	.000	YMRP 400.0000 IN.
(LET137)						ZMRP 400.0000 IN.
						SCALE .0300

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

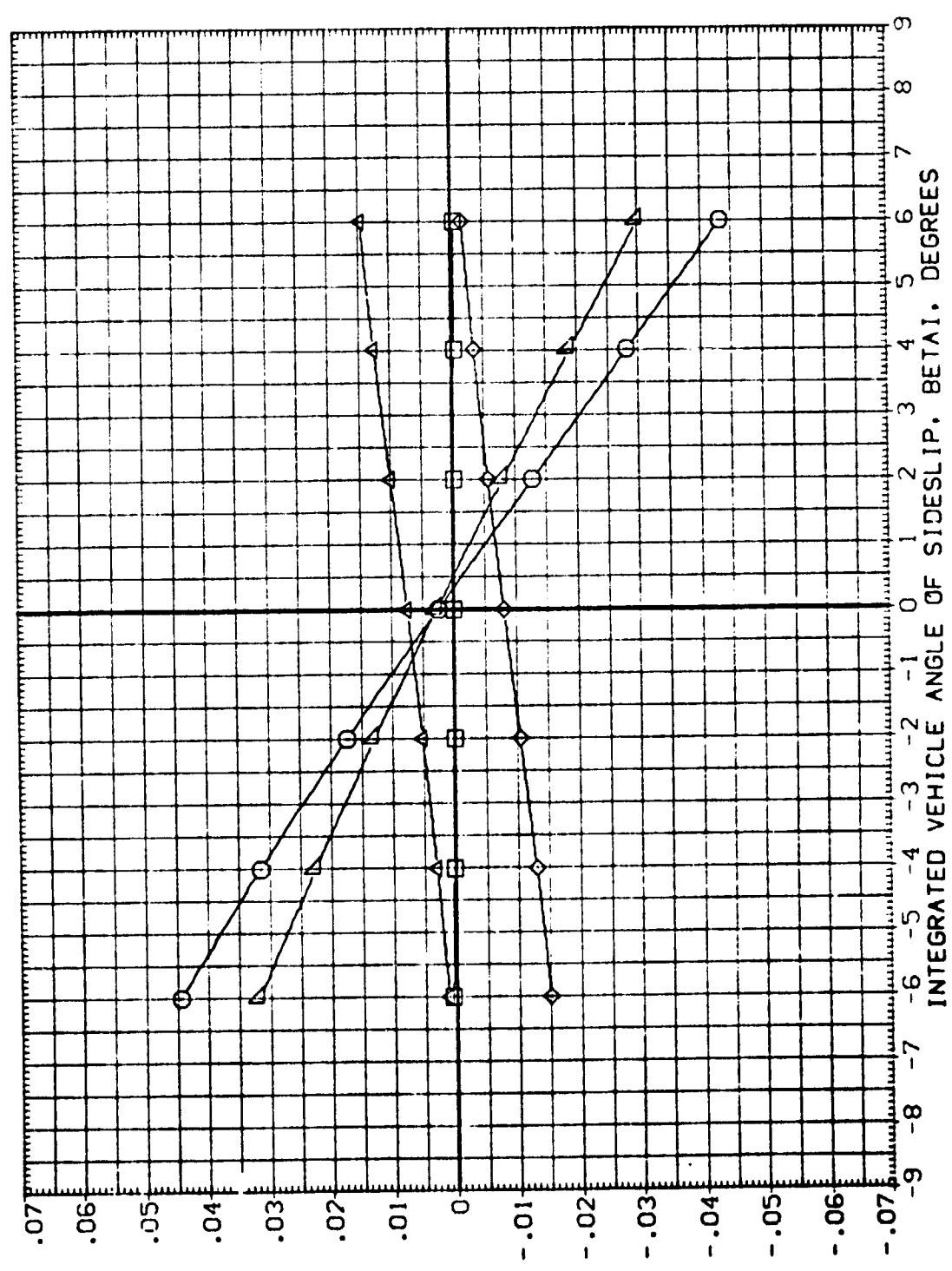


FIG. 25 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4
(B) ALPHA = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LE1037)	AMES97-019(1A81) LVAP	8.000	-4.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LE1137)	AMES97-019(1A81) LVAP	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(LE1137)	AMES97-019(1A81) LVAP	8.000	-4.000	2.200	.000	BREF 1297.0000 IN.
(LE1137)	AMES97-019(1A81) LVAP	8.000	-4.000	2.200	.000	YMRP 976.0000 IN.
(LE1137)	AMES97-019(1A81) LVAP	8.000	-4.000	2.200	.000	YMRP 976.0000 IN.
(LE1137)	AMES97-019(1A81) LVAP	8.000	-4.000	2.200	.000	ZMRP 400.0000 IN.
						SCALE .0300

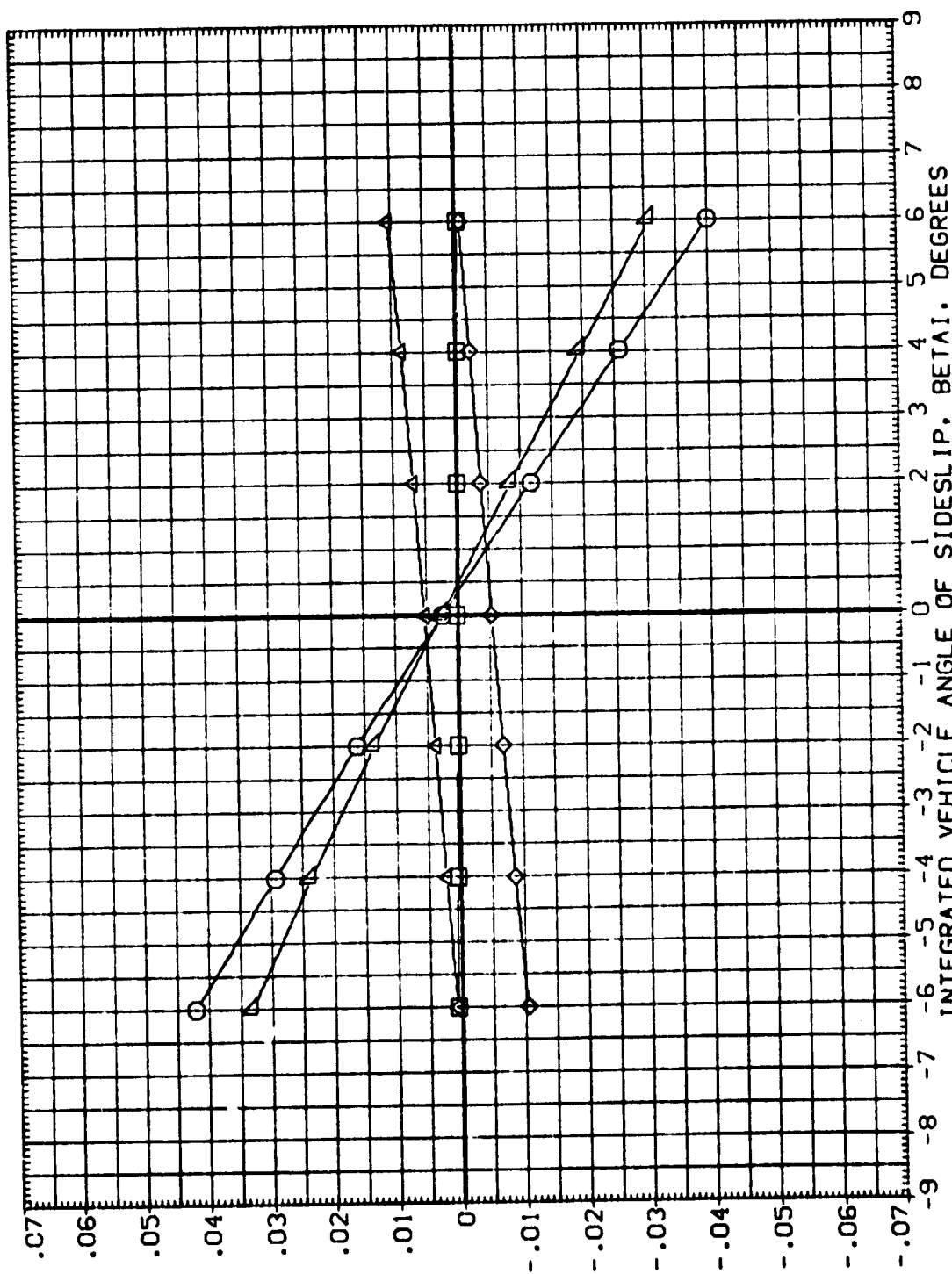


FIG. 25 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4
(C)ALPHA= -2.00

DATA SET SYMBOL CONFIGURATION DESCRIPTION ELV-18 ELV-09 MACH SPDBRK REFERENCE INFORMATION SQ. FT.

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-09	MACH	SPDBRK	REFERENCE INFORMATION	SQ. FT.
(LE1037)	AME597-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.200	.000	SREF	2690.0000
(LE1137)	AME597-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.200	.000	LREF	1297.0000
(LE1137)	AME597-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.200	.000	BREF	1297.0000
(LE1137)	AME597-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.200	.000	XMRP	976.0000
(LE1137)	AME597-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.200	.000	YMRP	400.0000
						ZMRP	400.0000
						SCALE	.0300

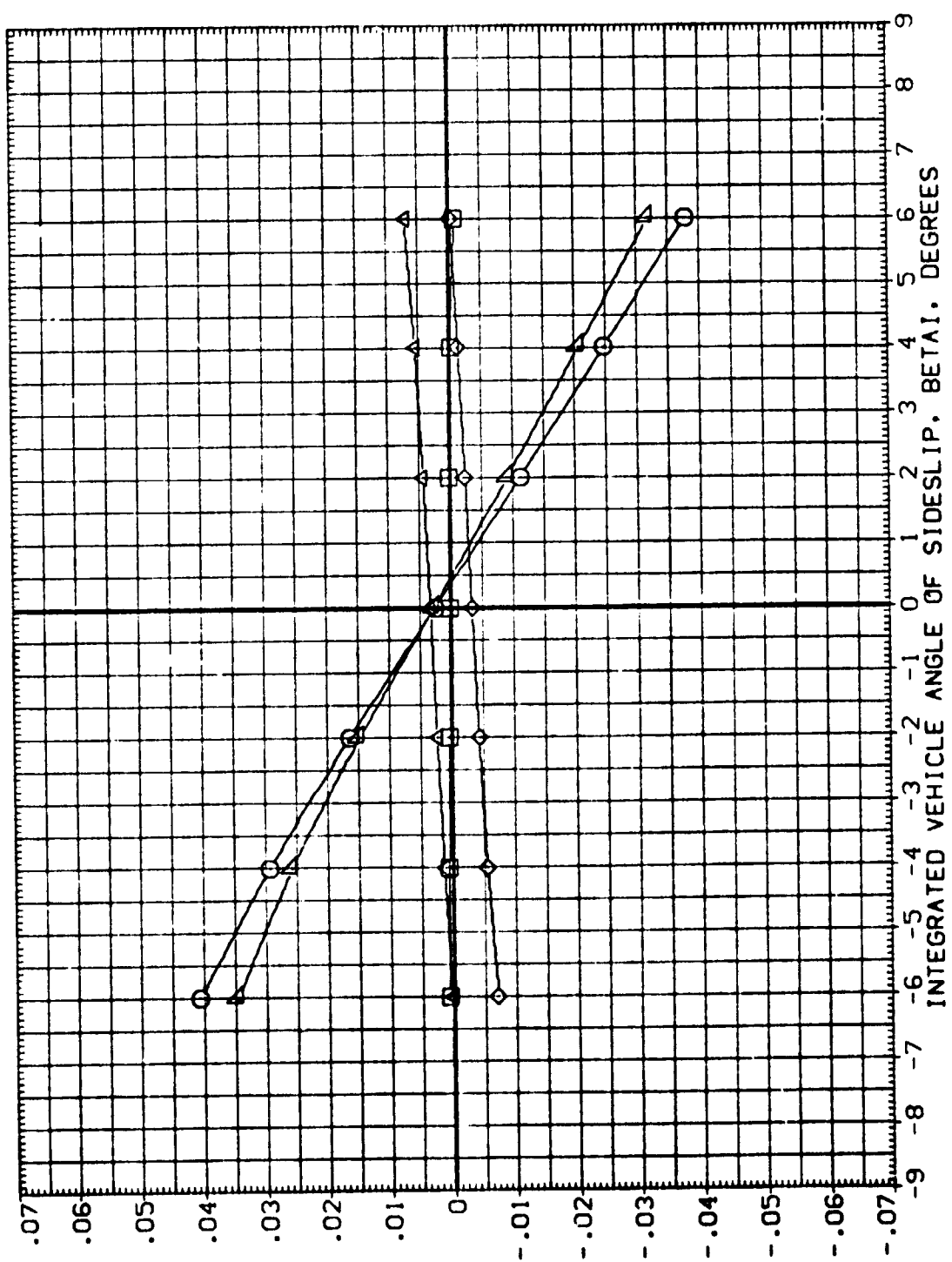


FIG. 25 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4
(D)ALPHA= .00 PAGE 610

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(LE1037)	AMES97-019(1A81) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.200	.000	SREF 2690.0000 SO.FT.
(LE1137)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(LE1237)	AMES97-019(1A81) LVAP L-SPB - ALL HL SEALED	8.000	-4.000	2.200	.000	BREF 1297.0000 IN.
(LE1337)	AMES97-019(1A81) LVAP R-LRB ALL HL SEALED	8.000	-4.000	2.200	.000	YMRP 976.0000 IN. YT
(LE1437)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.200	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

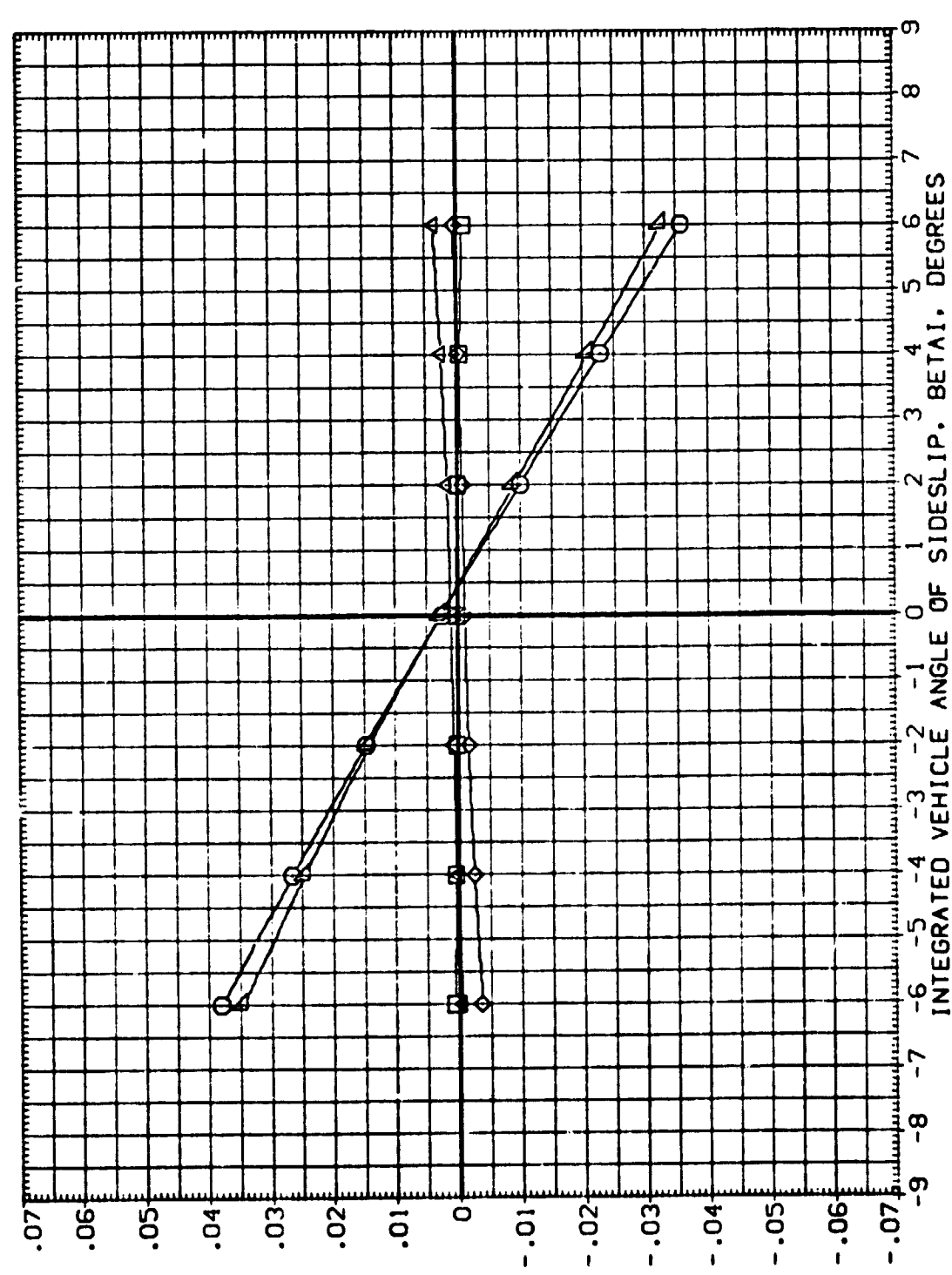


FIG. 25 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4
 (E)ALPHA= 2.00
 PAGE 611

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPOBRK	REFERENCE INFORMATION
(LE1037)	AMES97-019C(1A81) LVAP DRBITTER-ALL HL SEALED	8.000	-4.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LE1137)	AMES97-019C(1A81) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(LE1L37)	AMES97-019C(1A81) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.200	.000	BREF 1297.0000 IN.
(LE1R37)	AMES97-019C(1A81) LVAP R-1RB ALL HL SEALED	8.000	-4.000	2.200	.000	XMRP 976.0000 IN. XT
(LE1T37)	AMES97-019C(1A81) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.200	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

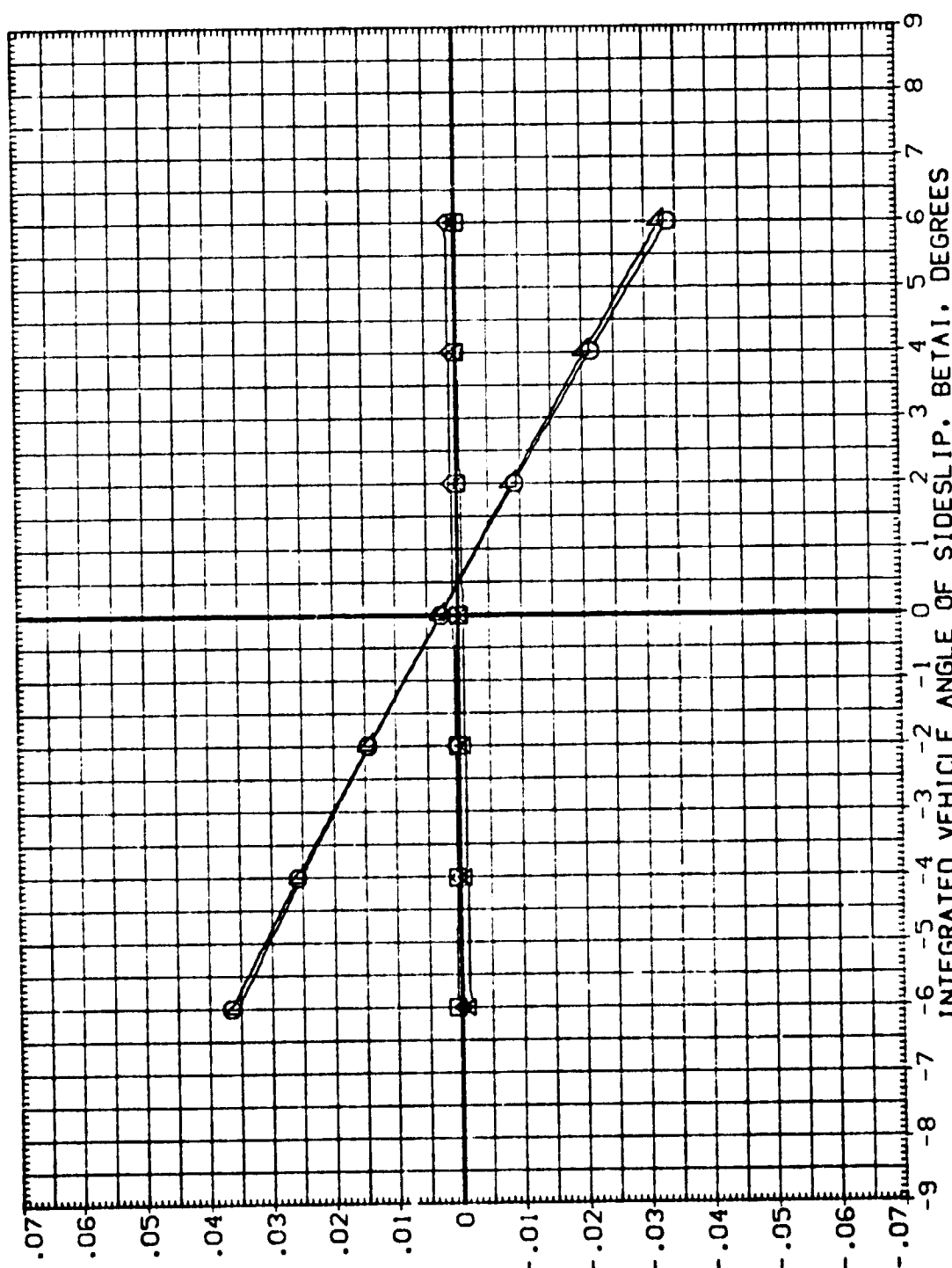


FIG. 25 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4
(F)ALPHAI= 4.00 PAGE 612

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-CB	MACH	SPOBRK	REFERENCE INFORMATION
(LE1037)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.200	.000	SREF 2690.0000 SO.FT.
(LE1137)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(LE1237)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.200	.000	BREF 1297.0000 IN. XT
(LE1337)	AMES97-019(IAB1) LVAP R-CRB - ALL HL SEALED	8.000	-4.000	2.200	.000	YMRP 976.0000 IN. YT
(LE1437)	AMES97-019(IAB1) LVAP INT VEH - ALL HL SEALED	8.000	-4.000	2.200	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

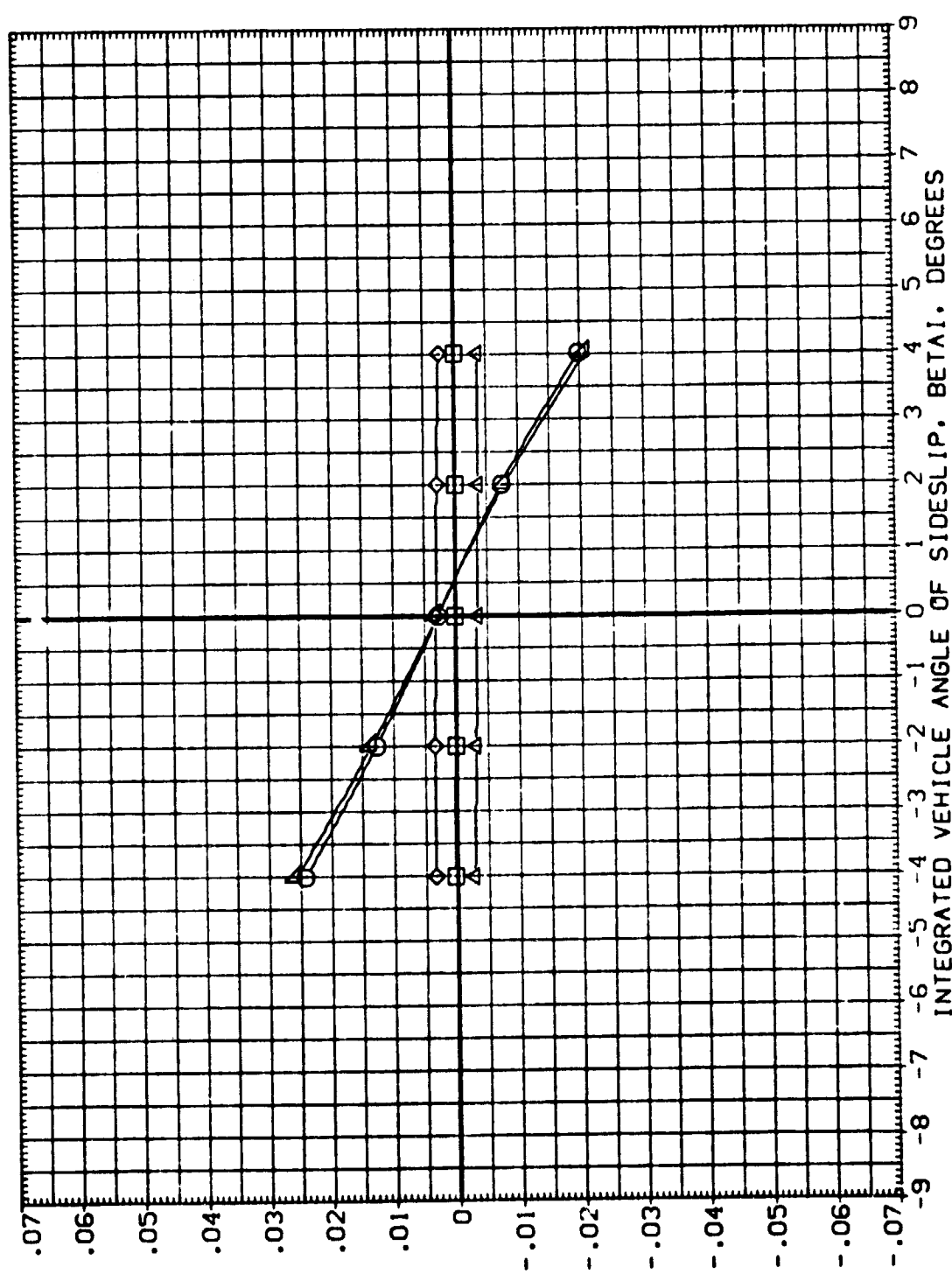


FIG. 25 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4
 (G)ALPHAI= 6.00 PAGE 613

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(LE1037)	AMES97-019(IAB1) LVAP ORBITTER-ALL HL SEALED	8.000	-4.000	2.200	.000	SREF 2690.0000 SO.FT.
(LE1137)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(LE137)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.200	.000	BREF 1297.0000 IN.
(LE137)	AMES97-019(IAB1) LVAP R-SRB - ALL HL SEALED	8.000	-4.000	2.200	.000	XMRP 976.0000 IN.
(LE137)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.200	.000	YMRP .0000 IN.
(LE137)					.000	ZMRP 400.0000 IN.
						SCALE .0300

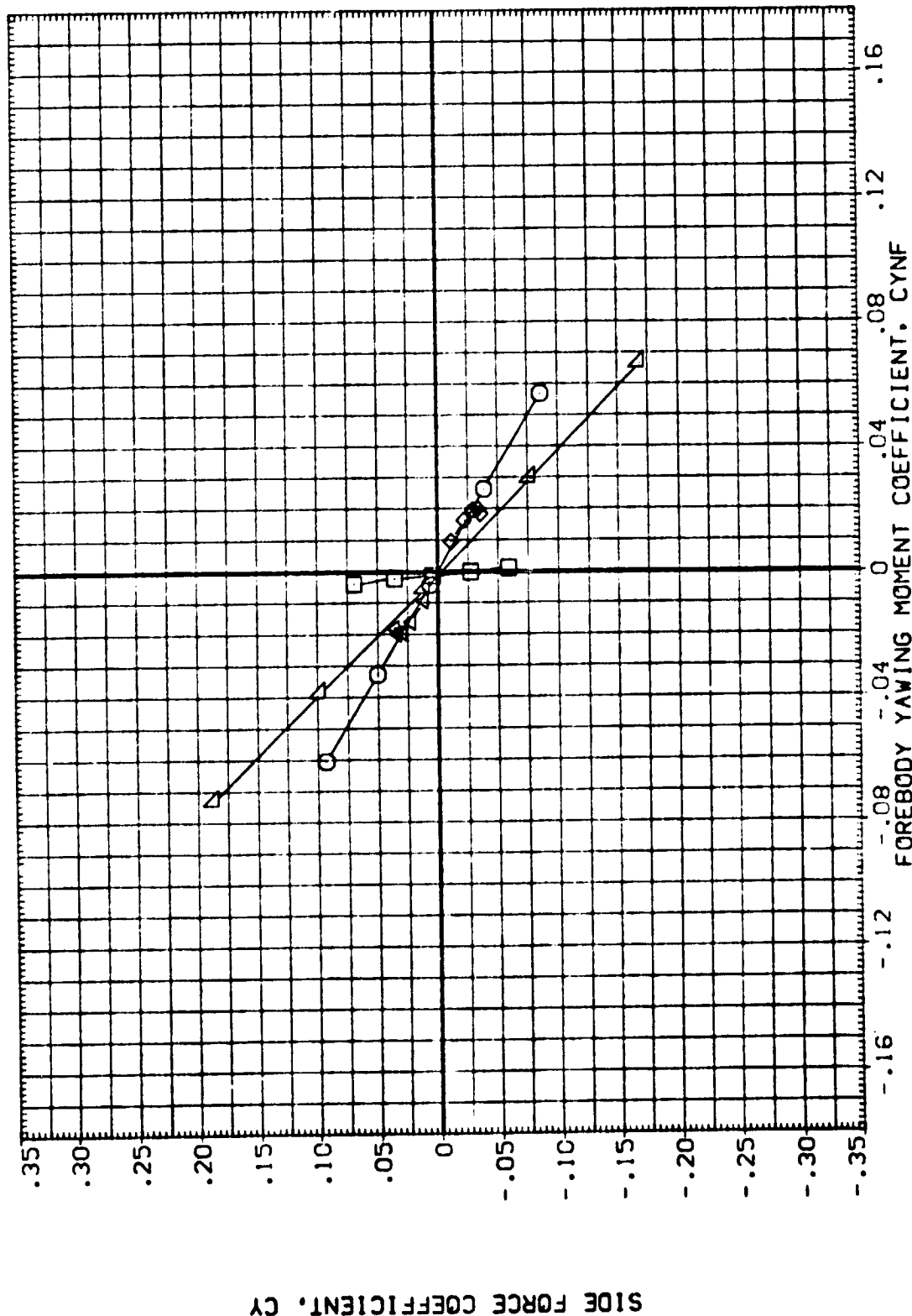


FIG. 25 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4

(A) ALPHA = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(LETO37)	APES97-019(1A81) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.200	.000	SREF 2690.0000 SO.FT.
(LETT37)	APES97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(LETL37)	APES97-019(1A81) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.200	.000	BREF 1297.0000 IN.
(LETR37)	APES97-019(1A81) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.200	.000	XMRP 976.0000 IN. XT
(LETT37)	APES97-019(1A81) LVAP INT VEM ALL HL SEALED	8.000	-4.000	2.200	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

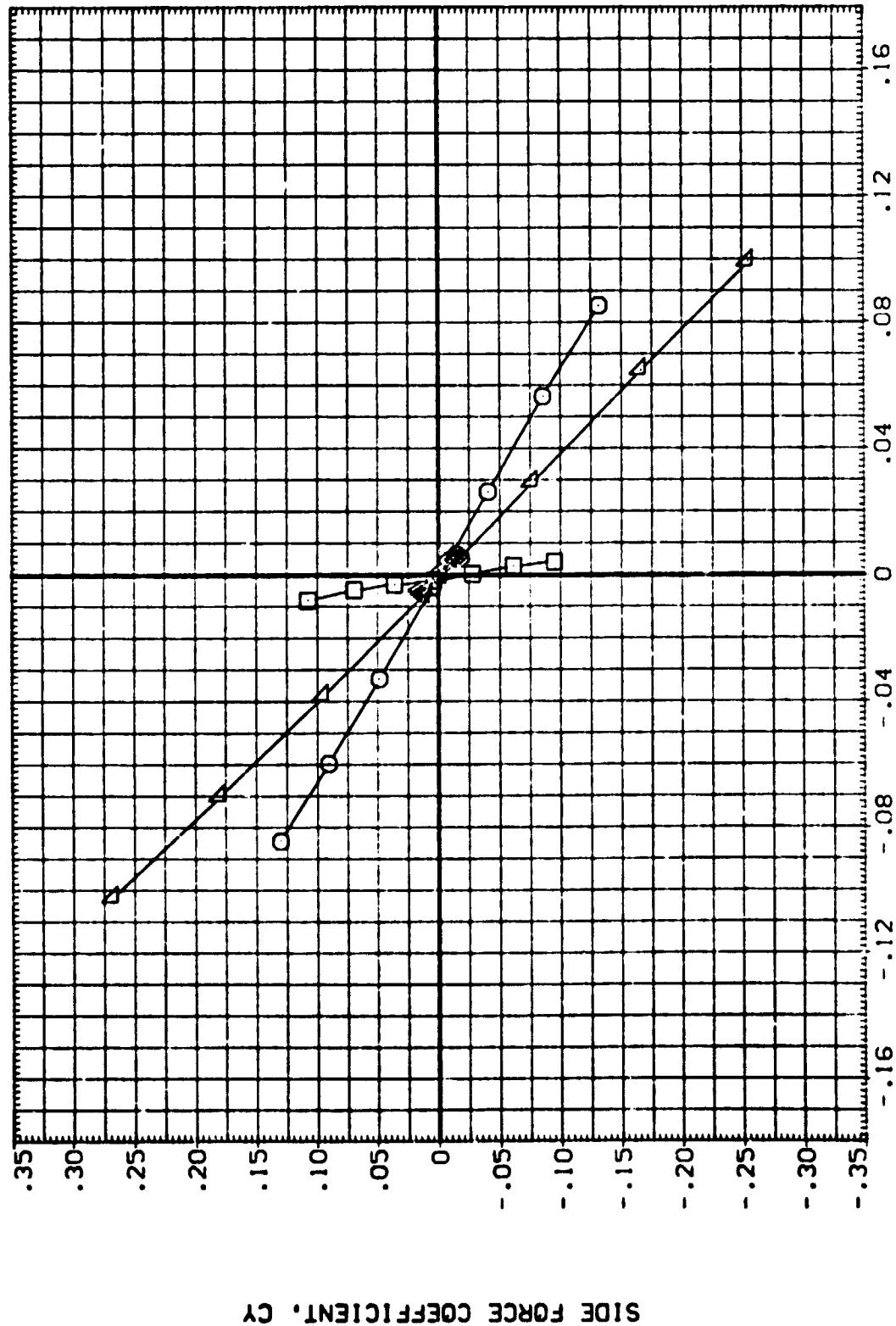


FIG. 25 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4

(B) ALPHA = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LE1037)	AME597-019(1A81) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LE1137)	AME597-019(1A81) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(LE1237)	AME597-019(1A81) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.200	.000	BREF 1297.0000 IN. XT
(LE1337)	AME597-019(1A81) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.200	.000	YHRP 976.0000 IN. YT
(LE1437)	AME597-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.200	.000	ZHRP 400.0000 IN. ZT
						SCALE .0300

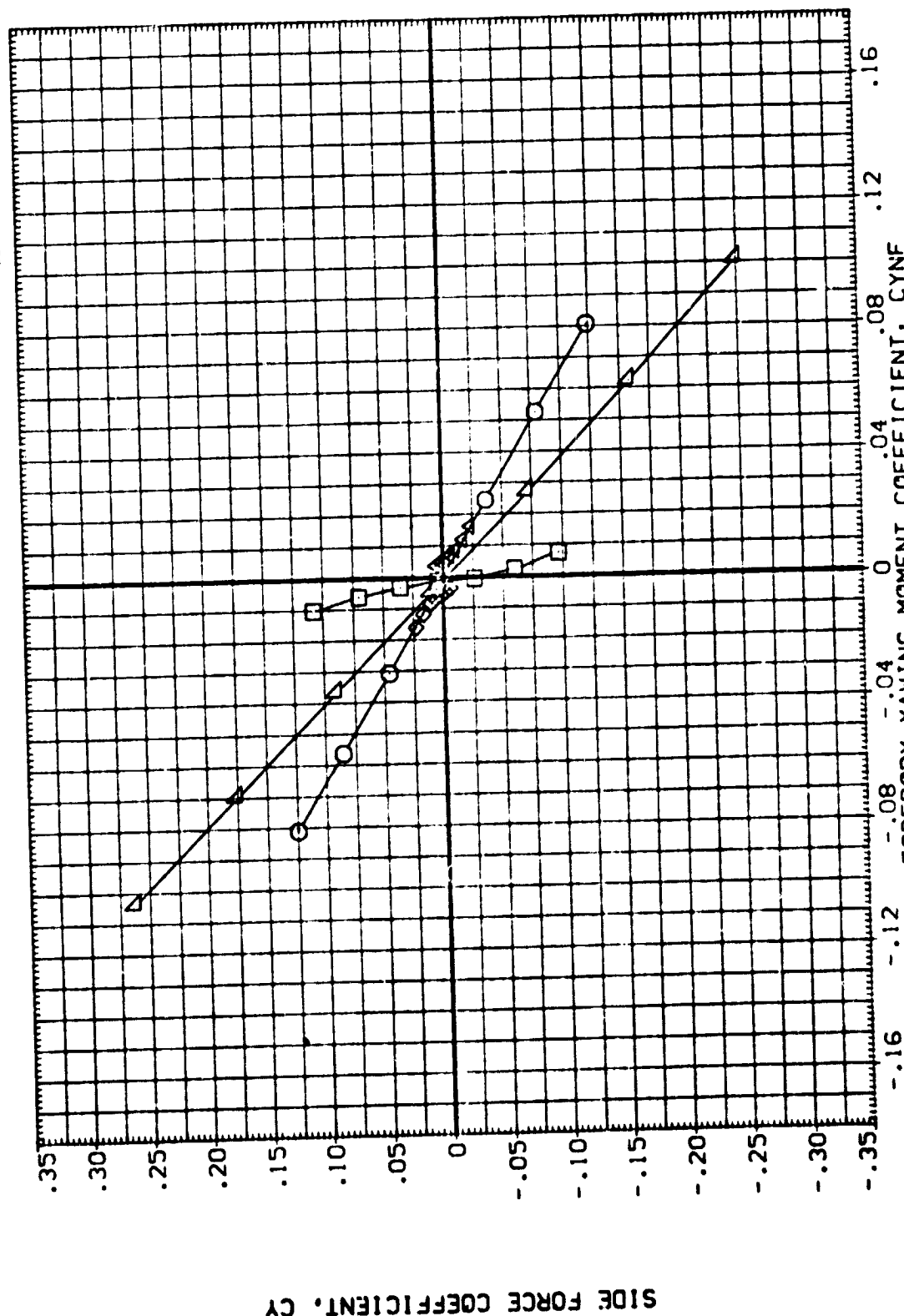


FIG. 25 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=2.2$ $DEV=8/-4$
 (C) ALPHA = -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LE10J7)	AMES97-019(IAB1) LVAP ORBITTER-ALL HL SEALED	8.000	-4.000	2.200	.000	SREF 2690.0000 SO.FT.
(LE11J7)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(LE12J7)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.200	.000	BREF 1297.0000 IN. XT
(LE13J7)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	8.000	-4.000	2.200	.000	XMRP 976.0000 IN. YT
(LE14J7)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.200	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

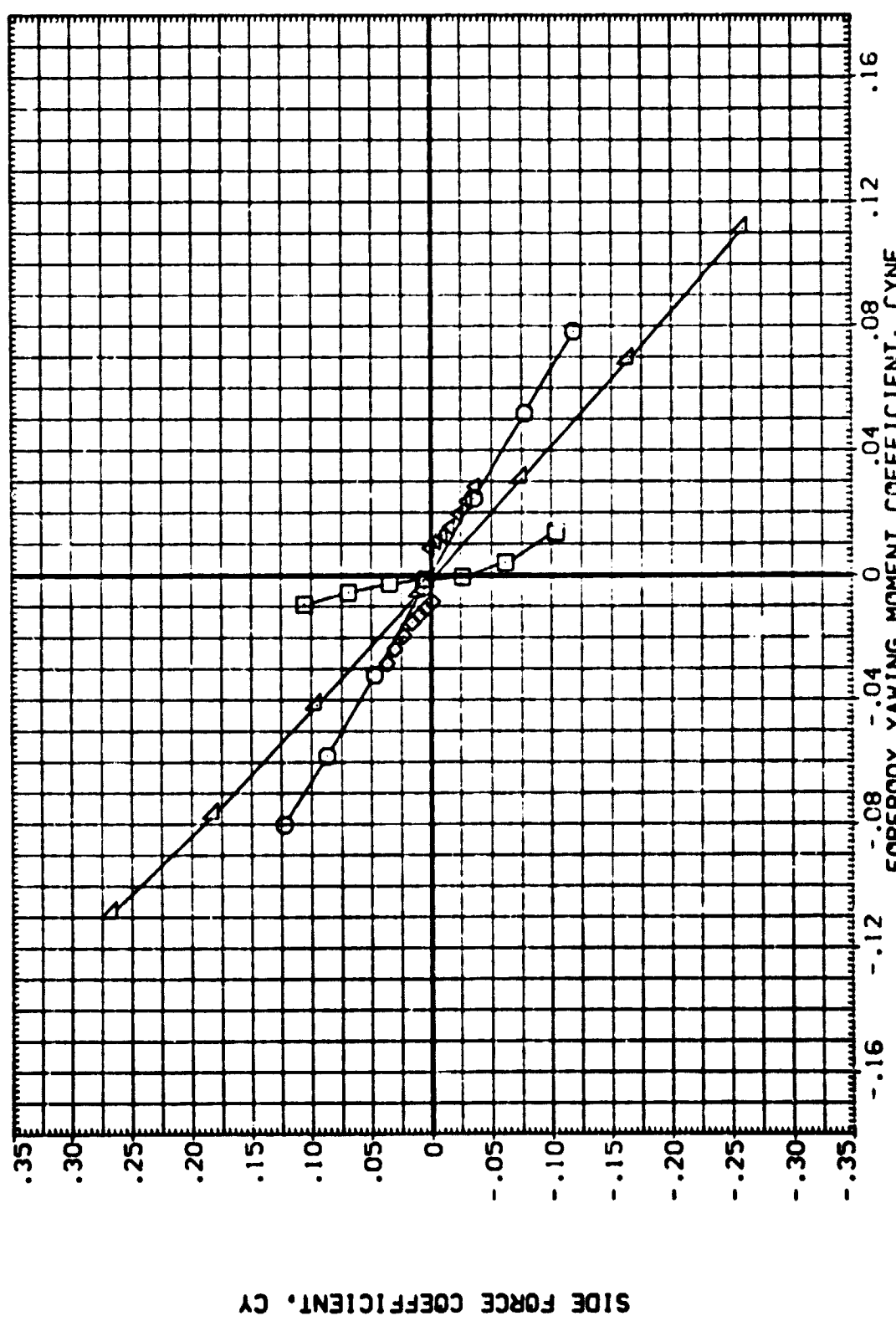


FIG. 25 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS. M=2.2 DEV=8/-4
 (D) ALPHA = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-CB	MACH	SPOBRM	REFERENCE INFORMATION
(LE1037)	AMES97-019(1A1) LVAP ORBITTER-ALL ML SEALED	8.000	-4.000	2.200	.000	SREF 2690.0000 SQ. FT.
(LE1137)	AMES97-019(1A1) LVAP TANK - ALL ML SEALED	8.000	-4.000	2.200	.000	UREF 1297.0000 IN.
(LE1137)	AMES97-019(1A1) LVAP L-SRB - ALL ML SEALED	8.000	-4.000	2.200	.000	SREF 1297.0000 IN.
(LE1137)	AMES97-019(1A1) LVAP R-LRB - ALL ML SEALED	8.000	-4.000	2.200	.000	YREF 976.0000 IN.
(LE1137)	AMES97-019(1A1) LVAP INT VEH ALL ML SEALED	8.000	-4.000	2.200	.000	YMRP 400.0000 IN.
(LE1137)						ZMRP .0300 SCALE

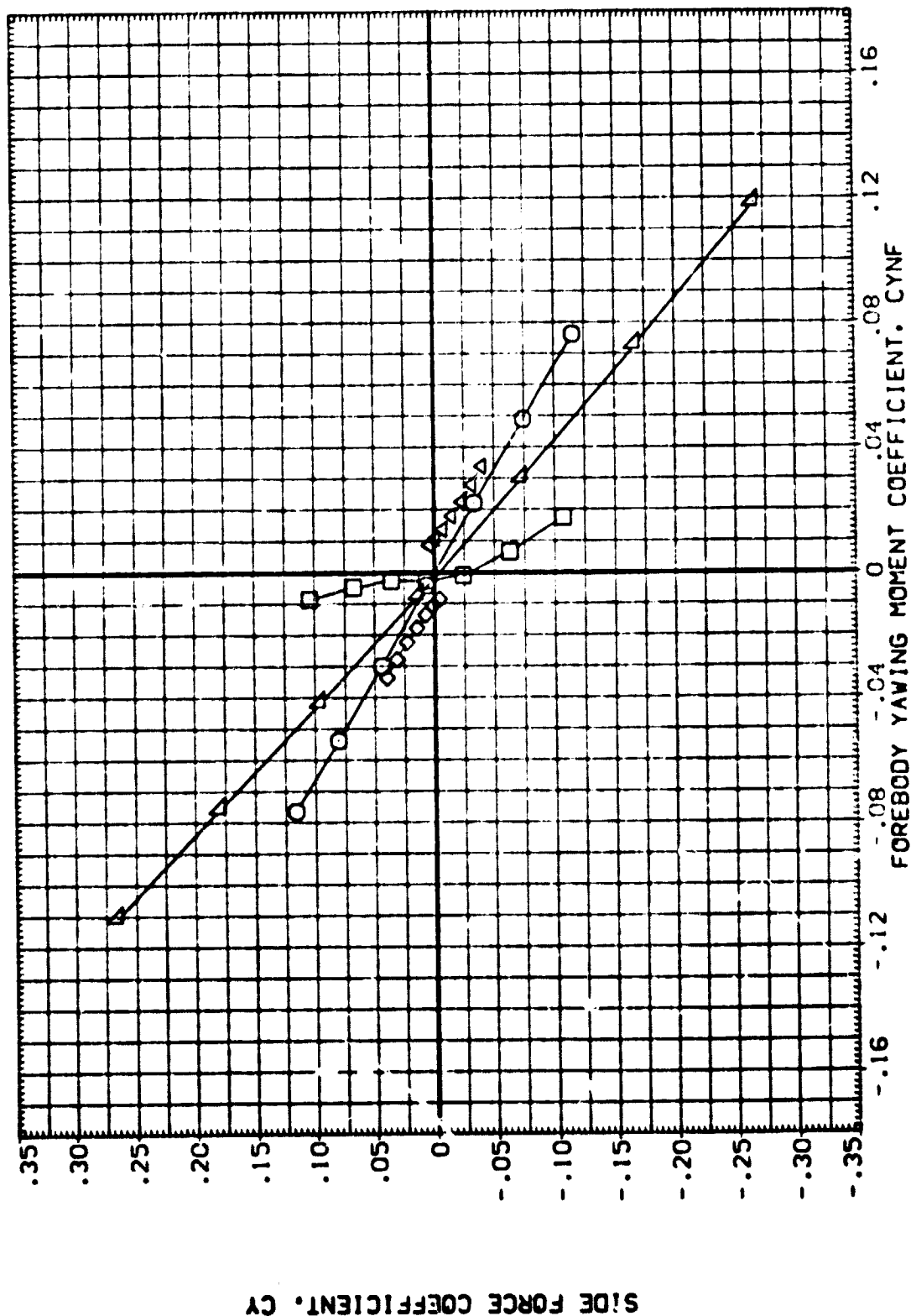


FIG. 25 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4
(E)ALPHA= 2.00 PAGE 618

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(LET037)	AMES97-019(IAB1) LVAP DPGITER-ALL ML SEALED	8.000	-4.000	2.200	.000	SREF 2690.0000 SO.FT.
(LET137)	AMES97-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(LET137)	AMES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	8.000	-4.000	2.200	.000	BREF 1297.0000 IN.
(LET137)	AMES97-019(IAB1) LVAP R-LRB - ALL ML SEALED	8.000	-4.000	2.200	.000	XMRP 976.0000 IN. XT
(LET137)	AMES97-019(IAB1) LVAP INT VEH ALL ML SEALED	8.000	-4.000	2.200	.000	VMRP 400.0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

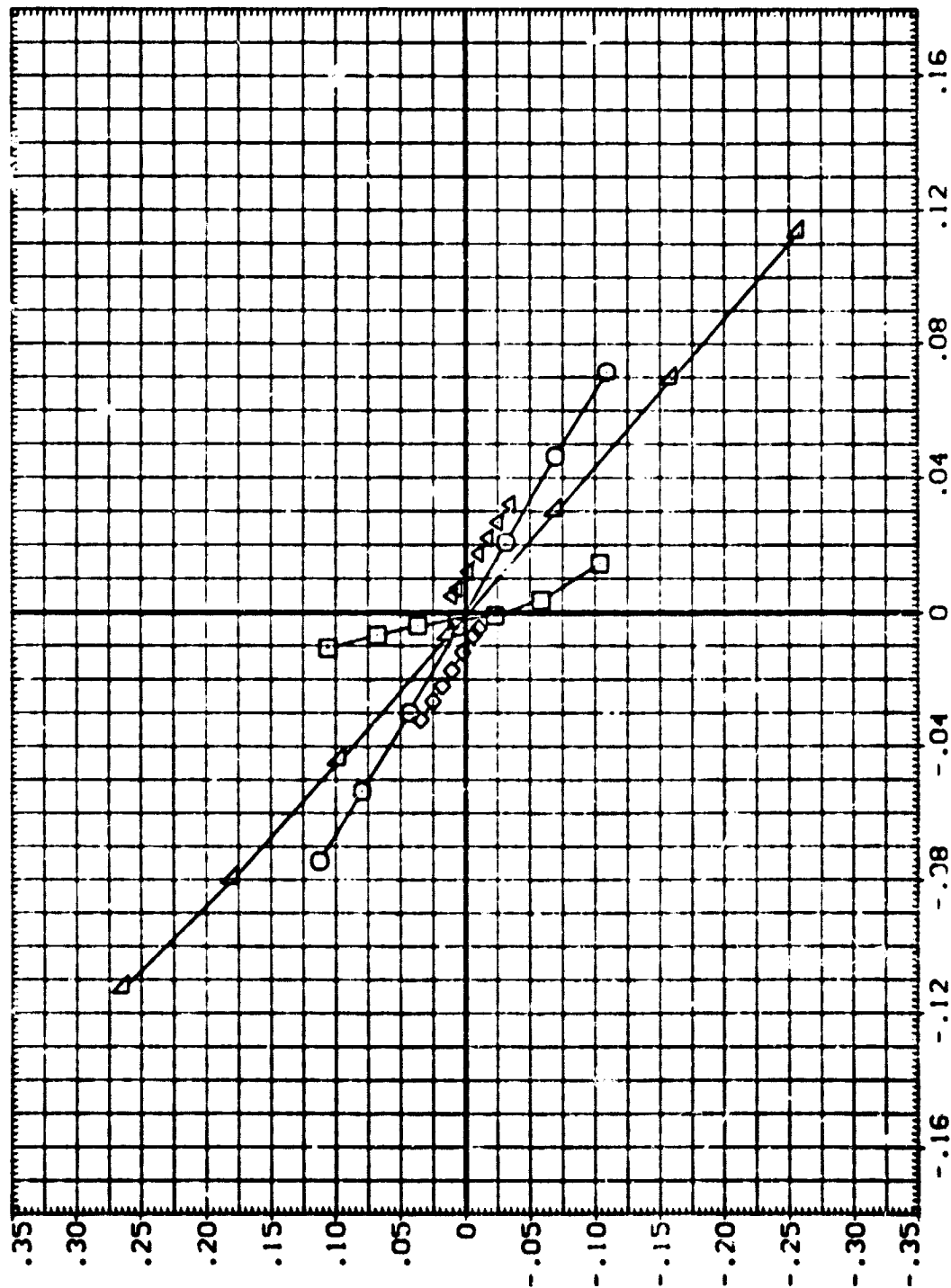


FIG. 25 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LET03)	AMES97-0191(A81) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.200	.000	SREF 2690.0000 SO.FT.
(LET137)	AMES97-0191(A81) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.200	.000	LEEF 1297.0000 IN.
(LET137)	AMES97-0191(A81) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.200	.000	BREF 1297.0000 IN.
(LET137)	AMES97-0191(A81) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.200	.000	XMRP 976.0000 IN.
(LET137)	AMES97-0191(A81) LVAP INT VEH - ALL HL SEALED	8.000	-4.000	2.200	.000	YMRP 400.0000 IN.
						SCALE .0300

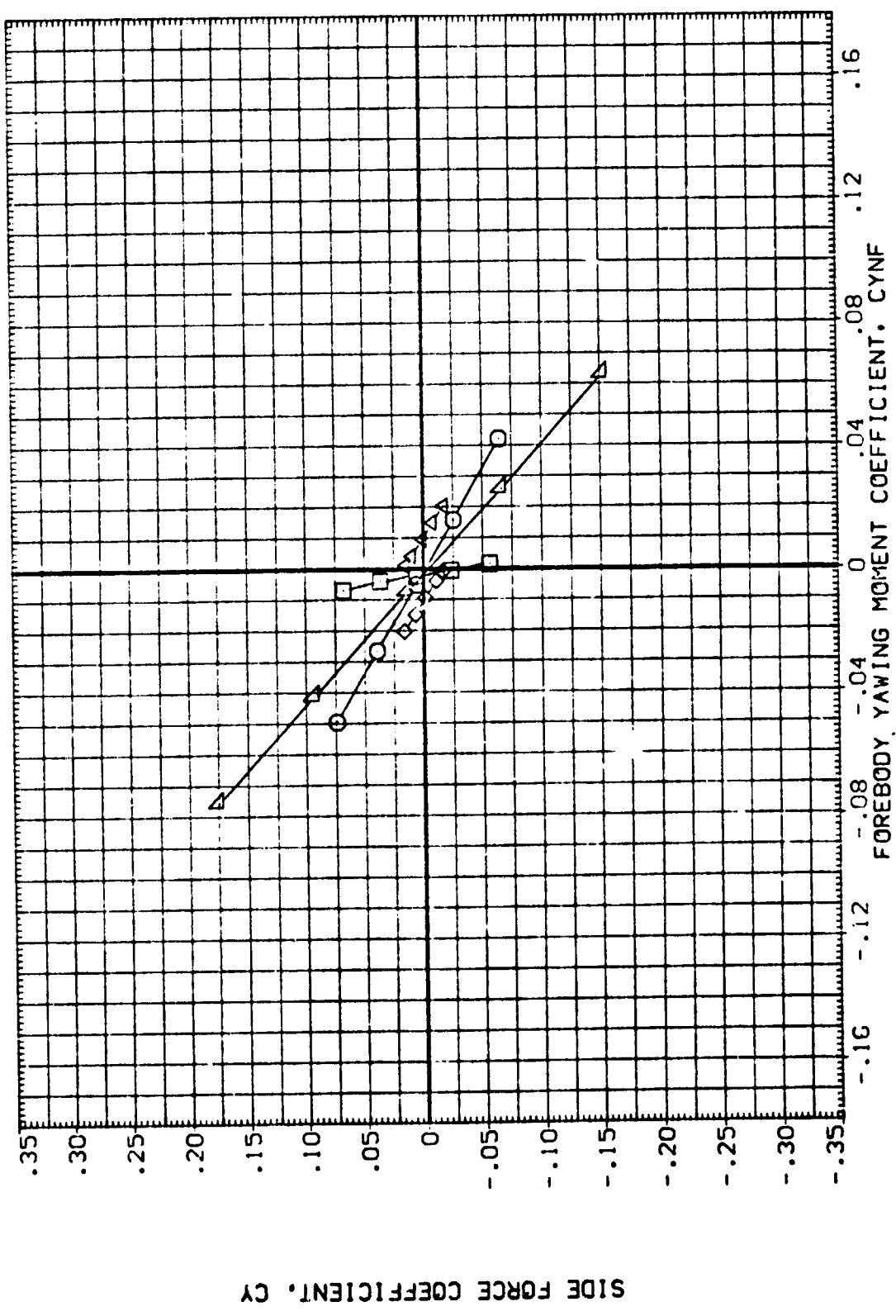


FIG. 25 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4
(G)ALPHA1= 6.00

REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(LET037)	ORBITER-ALL ML SEALED	8.000	-4.000	2.200	.000	SREF 2690.0000 SO.FT.
(LET137)	TANK - ALL ML SEALED	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(LET137)	L-SRB - ALL ML SEALED	8.000	-4.000	2.200	.000	BREF 1297.0000 IN.
(LET137)	R-LRB - ALL ML SEALED	8.000	-4.000	2.200	.000	XMRP 976.0000 IN.
(LET137)	LVAP INT VEH ALL ML SEALED	8.000	-4.000	2.200	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

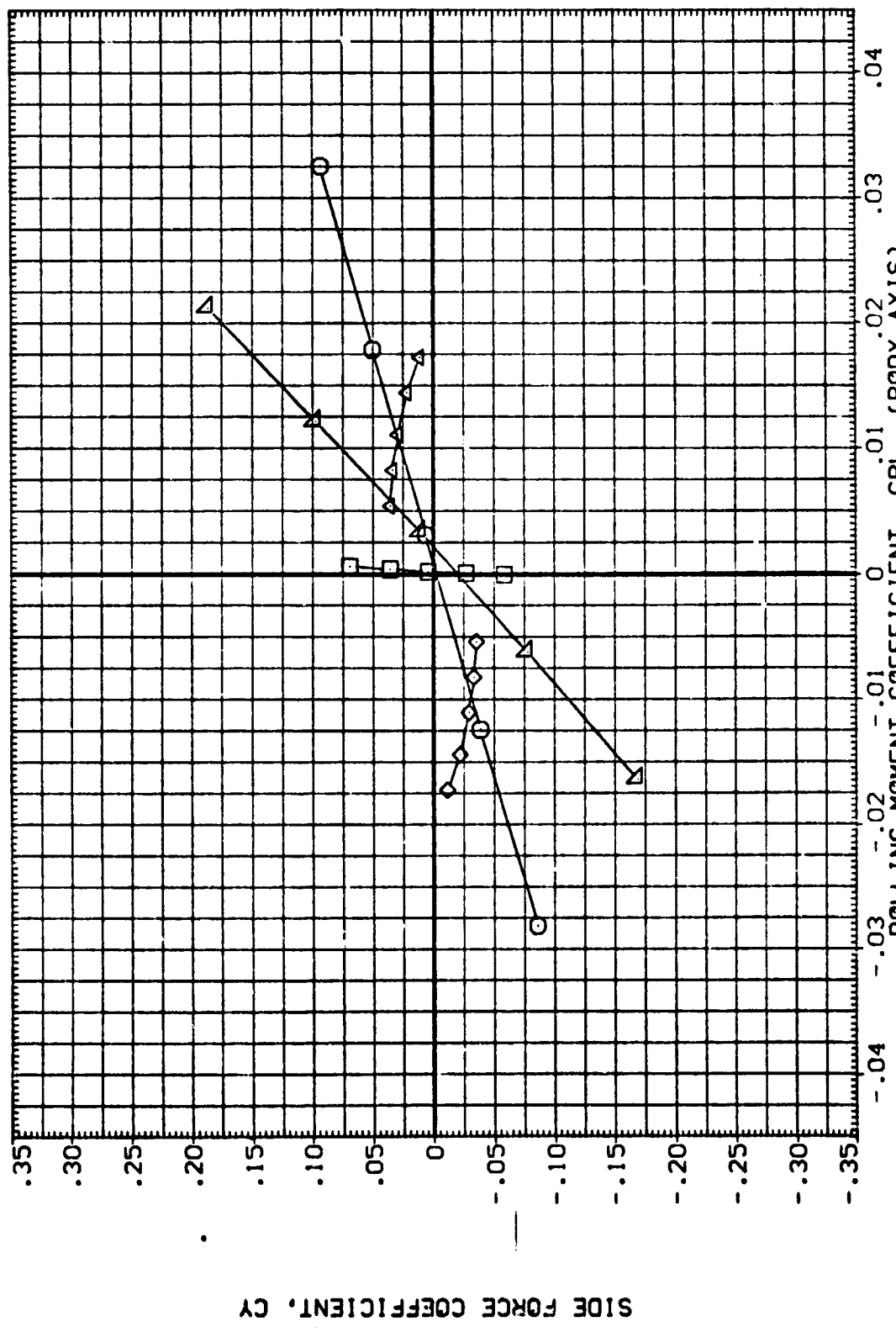


FIG. 25 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4
(α)ALPHA= -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ORBITER-ALL	HL	SEALED	ELV-IB	ELV-OB	MACH	SPO2RK	REFERENCE INFORMATION
(LETT037)	AMES97-019(IAB1) LVAP	TANK	-	ALL HL	SEALED	8.000	-4.000	.000	SREF 2690.0000 SQ.FT.
(LETT37)	AMES97-019(IAB1) LVAP	L-SRB	-	ALL HL	SEALED	8.000	-4.000	.000	LREF 1297.0000 IN.
(LETTL37)	AMES97-019(IAB1) LVAP	R-CRB	-	ALL HL	SEALED	8.000	-4.000	.000	BREF 1297.0000 IN.
(LETT37)	AMES97-019(IAB1) LVAP	INT VEH	ALL HL	SEALED	8.000	-4.000	2.200	.000	XMRP 976.0000 IN.
(LETT37)	AMES97-019(IAB1) LVAP	INT VEH	ALL HL	SEALED	8.000	-4.000	2.200	.000	YMRP 400.0000 IN.
									ZMRP 400.0000 IN.
									SCALE .0300

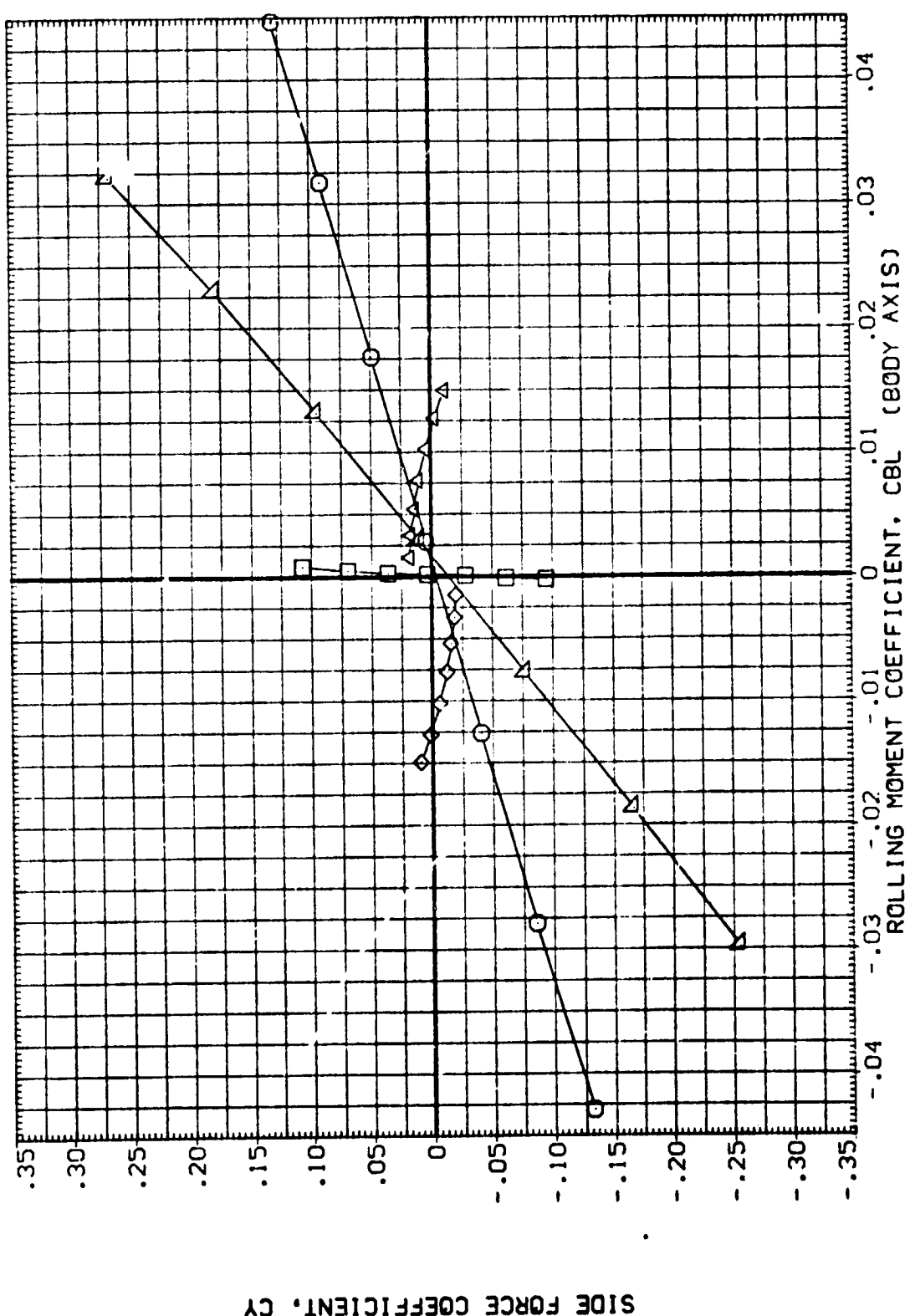


FIG. 25 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4
(B) ALPHA = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-10	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(LE1037)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.200	.000	SREF 2690.0000 SO.FT.
(LE1137)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(LE1237)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.200	.000	BREF 1297.0000 IN.
(LE1337)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.200	.000	XMRP 976.0000 IN.
(LE1437)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.200	.000	YMRP 400.0000 IN.
(LE1537)						ZMRP 400.0000 IN.
						SCALE .0300

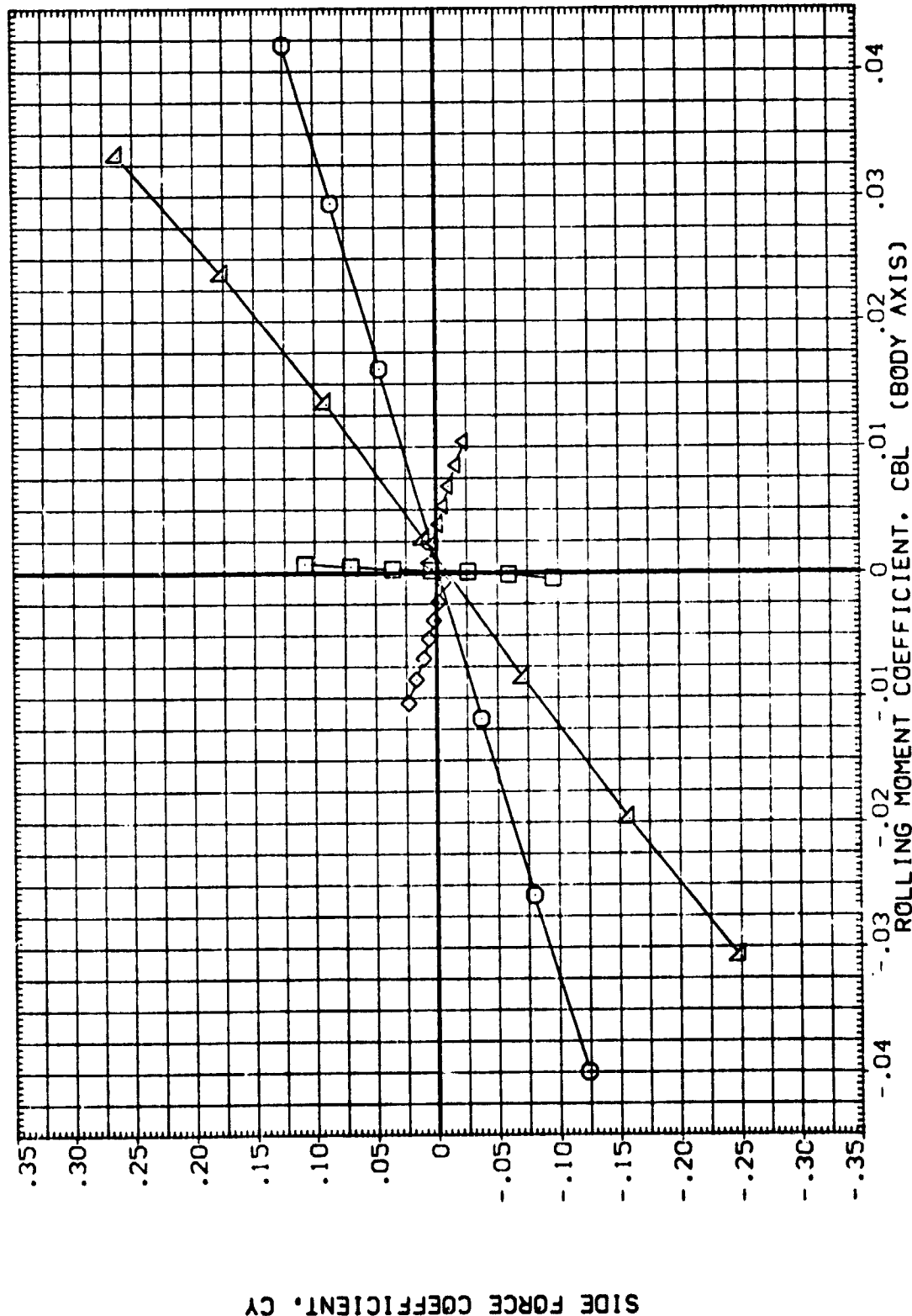


FIG. 25 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4

(C)ALPHA= -2.00

DATA SET SYMBOL	CONF. GURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION			
(LE1037)	APES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.200	.000	SREF	2690.0000	SO.FT.	
(LE1137)	APES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.200	.000	LREF	1297.0000	IN.	
(LE1137)	APES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.200	.000	BREF	1297.0000	IN.	XT
(LE1137)	APES97-019(IAB1) LVAP R-LRB ALL HL SEALED	8.000	-4.000	2.200	.000	XMRP	976.0000	IN.	YT
(LE1137)	APES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.200	.000	YMRP	400.0000	IN.	ZT
						SCALE			.0300

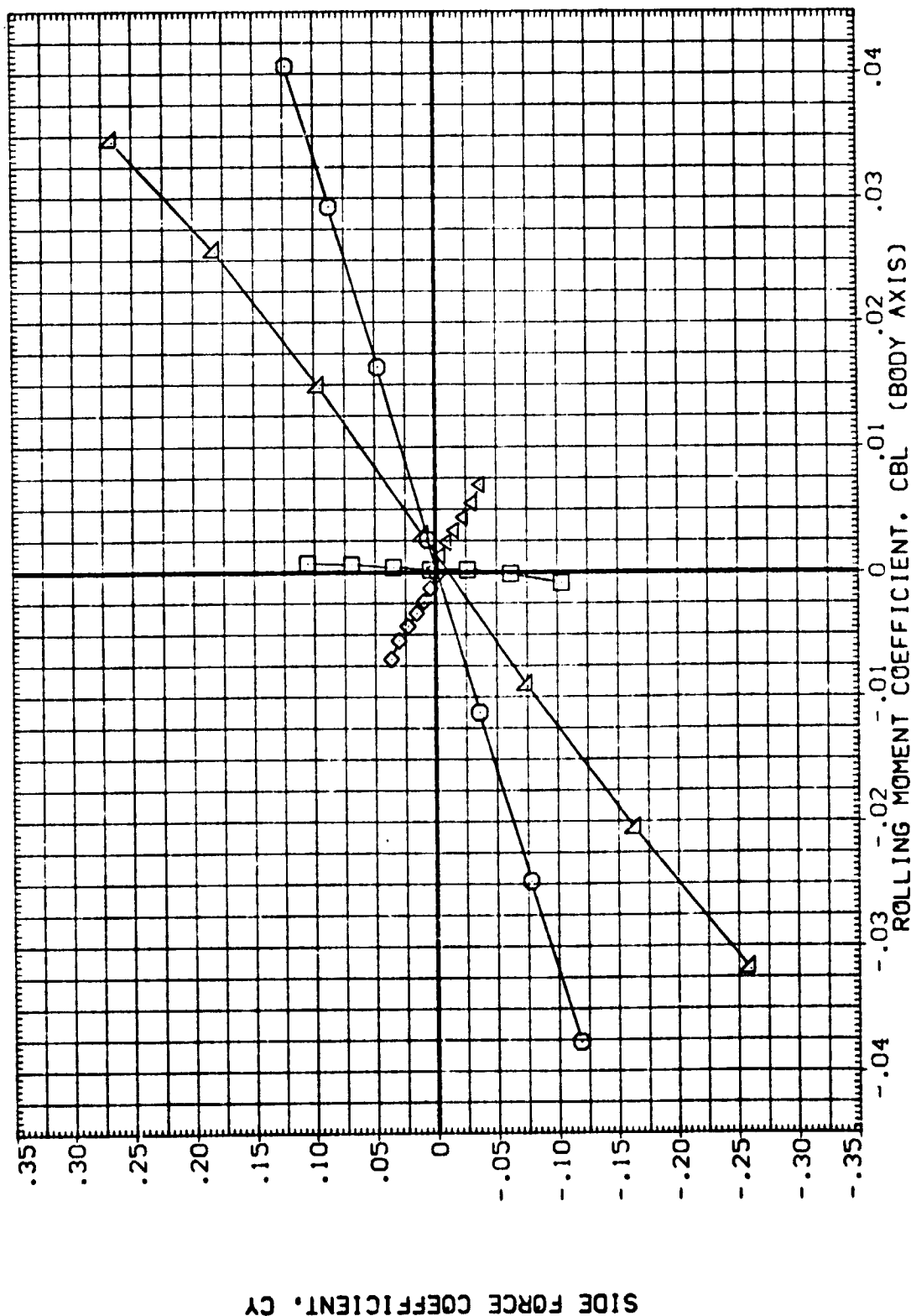


FIG. 25 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4
(D) ALPHA I = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDRK	REFERENCE INFORMATION
(LE1037)	APES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LE1137)	APES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(LE1L37)	APES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.200	.000	BREF 1297.0000 IN.
(LE1R37)	APES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.200	.000	XMRP 976.0000 IN. XT
(LE1137)	APES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.200	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

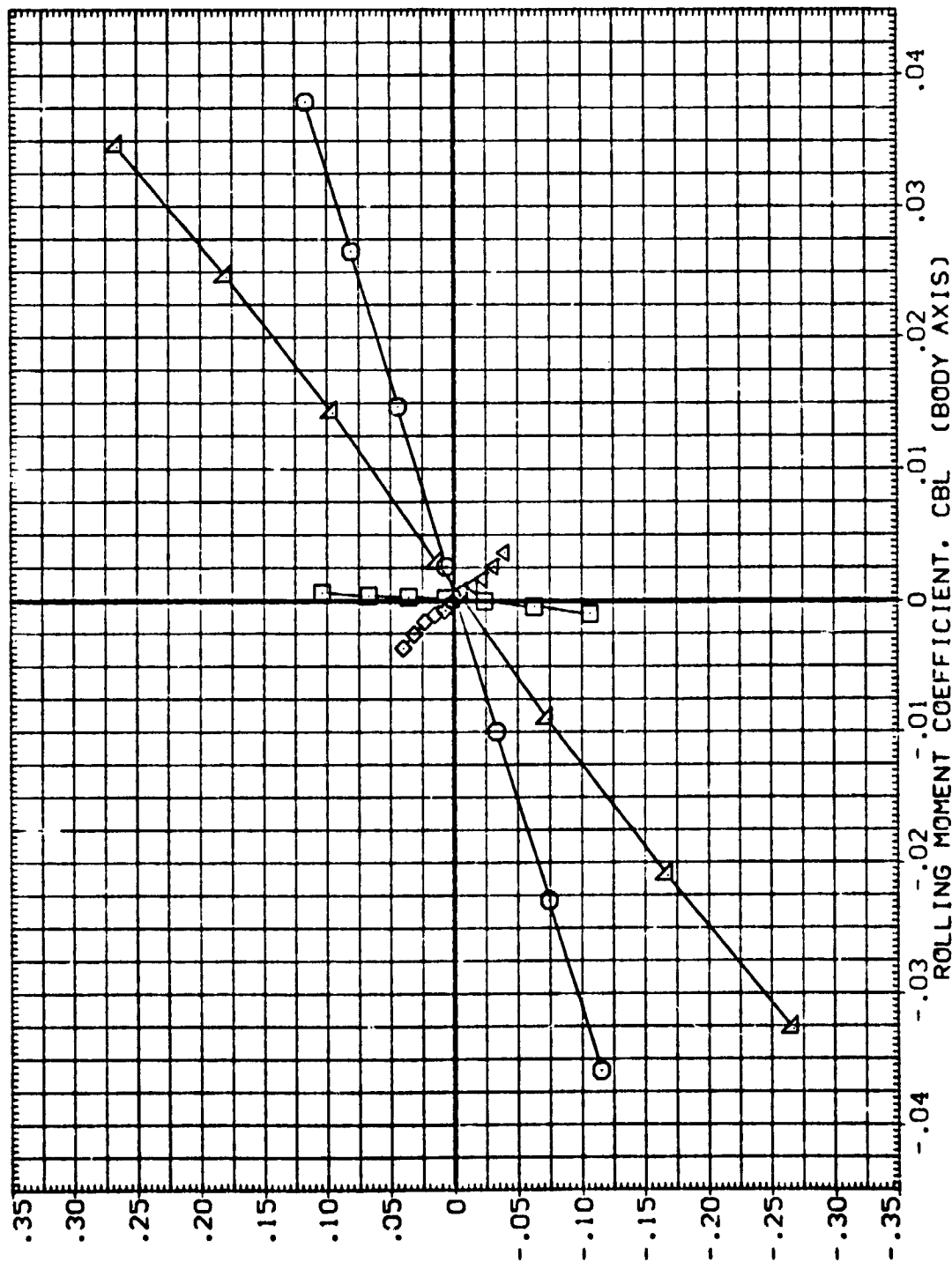


FIG. 25 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(LETO37)	AMES97-019(1A81)	LVAP	ORBITER-ALL	HL	SEALED
(LETT37)	AMES97-019(1A81)	LVAP	TANK	ALL	HL
(LETL37)	AMES97-019(1A81)	LVAP	L-SRB	ALL	HL
(LETR37)	AMES97-019(1A81)	LVAP	R-LRB	ALL	HL
(LETT37)	AMES97-019(1A81)	LVAP	INT VEH	ALL	HL

REFERENCE INFORMATION

SREF	2690.0000	SO.FT.
LREF	1297.0000	IN.
BREF	1297.0000	IN.
XMRP	976.0000	IN.
YMRP	0.0000	IN.
ZMRP	400.0000	IN.
SCALE	0.0300	

ELV-IB ELV-OB MACH SPDBRK

8.000	-4.000	2.200	.000
8.000	-4.000	2.200	.000
8.000	-4.000	2.200	.000
8.000	-4.000	2.200	.000
8.000	-4.000	2.200	.000

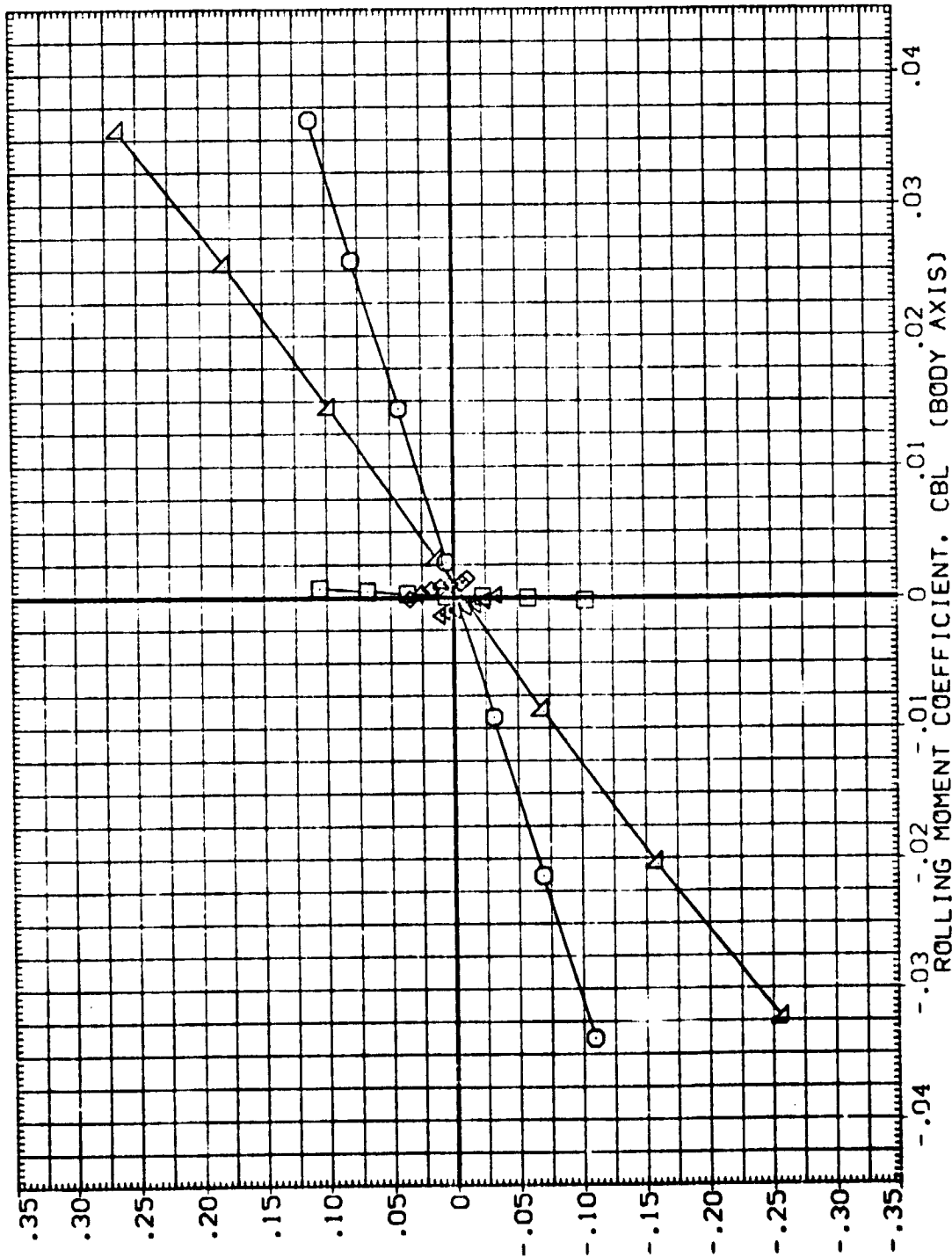


FIG. 25 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4

(F)ALPHA= 4.00

DATA SET SYMRC	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDBRK	REFERENCE INFORMATION
(LETO37)	AMES97-0191(A81) LVAP	8.000	-4.000	2.200	.000	SREF 2690.0000 SO.FT.
(LETT37)	AMES97-0191(A81) LVAP	8.000	-4.000	2.200	.000	LREF 1297.0000 IN.
(LETL37)	AMES97-0191(A81) LVAP	8.000	-4.000	2.200	.000	BREF 1297.0000 IN.
(LETR37)	AMES97-0191(A81) LVAP	8.000	-4.000	2.200	.000	XMRP 976.0000 IN.
(LETT37)	AMES97-0191(A81) LVAP	8.000	-4.000	2.200	.000	YMRP 400.0000 IN.
(LETT37)	AMES97-0191(A81) LVAP	8.000	-4.000	2.200	.000	ZMRP 400.0000 IN.
						SCALE .0300

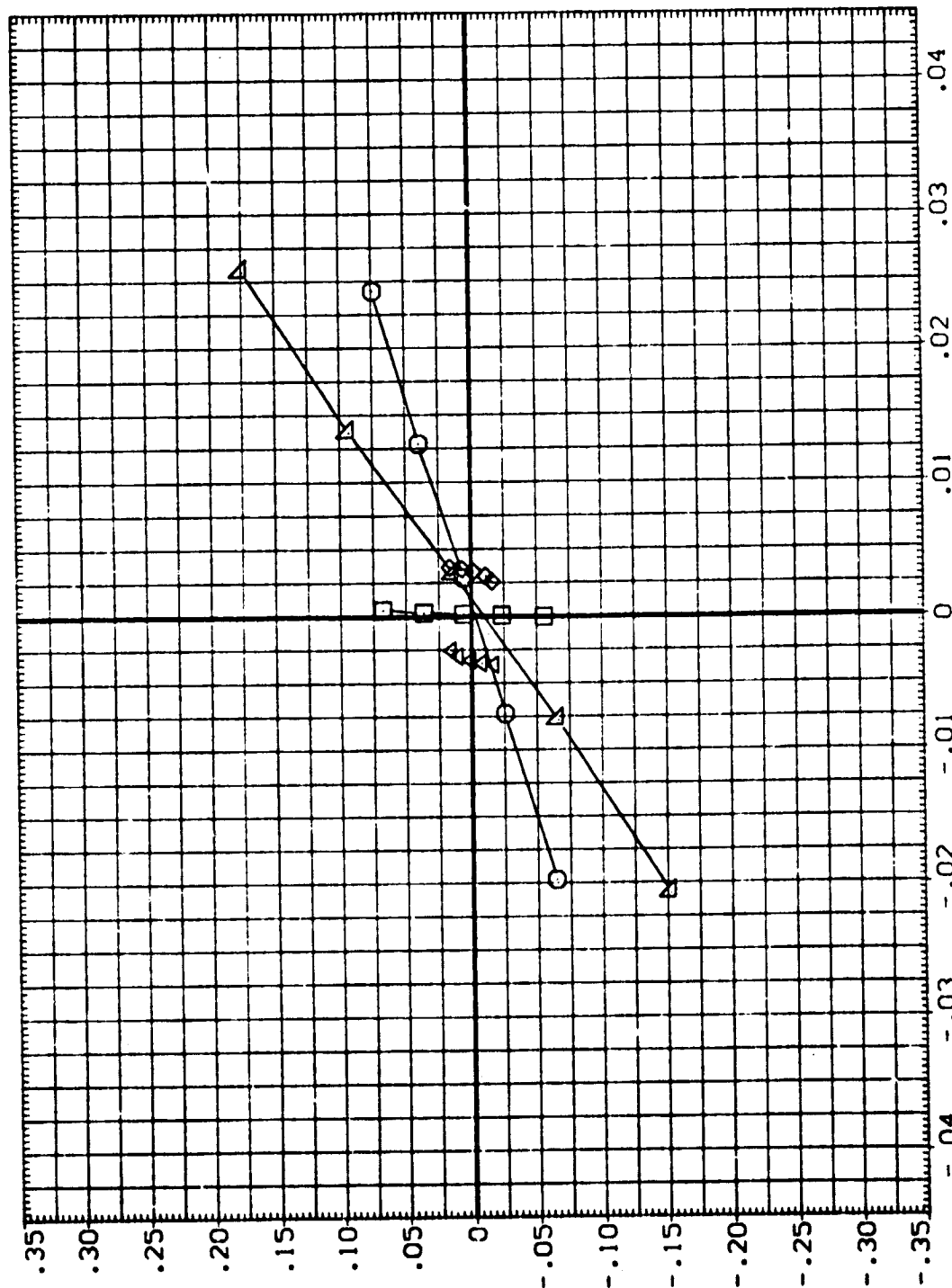


FIG. 25 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/-4

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(LET041)	AMES97-C19(IAB1) LVAP TANK - ALL ML SEALED	.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LET141)	AMES97-D19(IAB1) LVAP TANK - ALL ML SEALED	.000	.000	2.200	.000	LREF 1297.0000 IN.
(LET141)	AMES97-D19(IAB1) LVAP L-SRB - ALL ML SEALED	.000	.000	2.200	.000	BREF 1297.0000 IN.
(LET141)	AMES97-D19(IAB1) LVAP R-LRB - ALL ML SEALED	.000	.000	2.200	.000	XMRP 976.0000 IN.
(LET141)	AMES97-D19(IAB1) LVAP INT VEH ALL ML SEALED	.000	.000	2.200	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

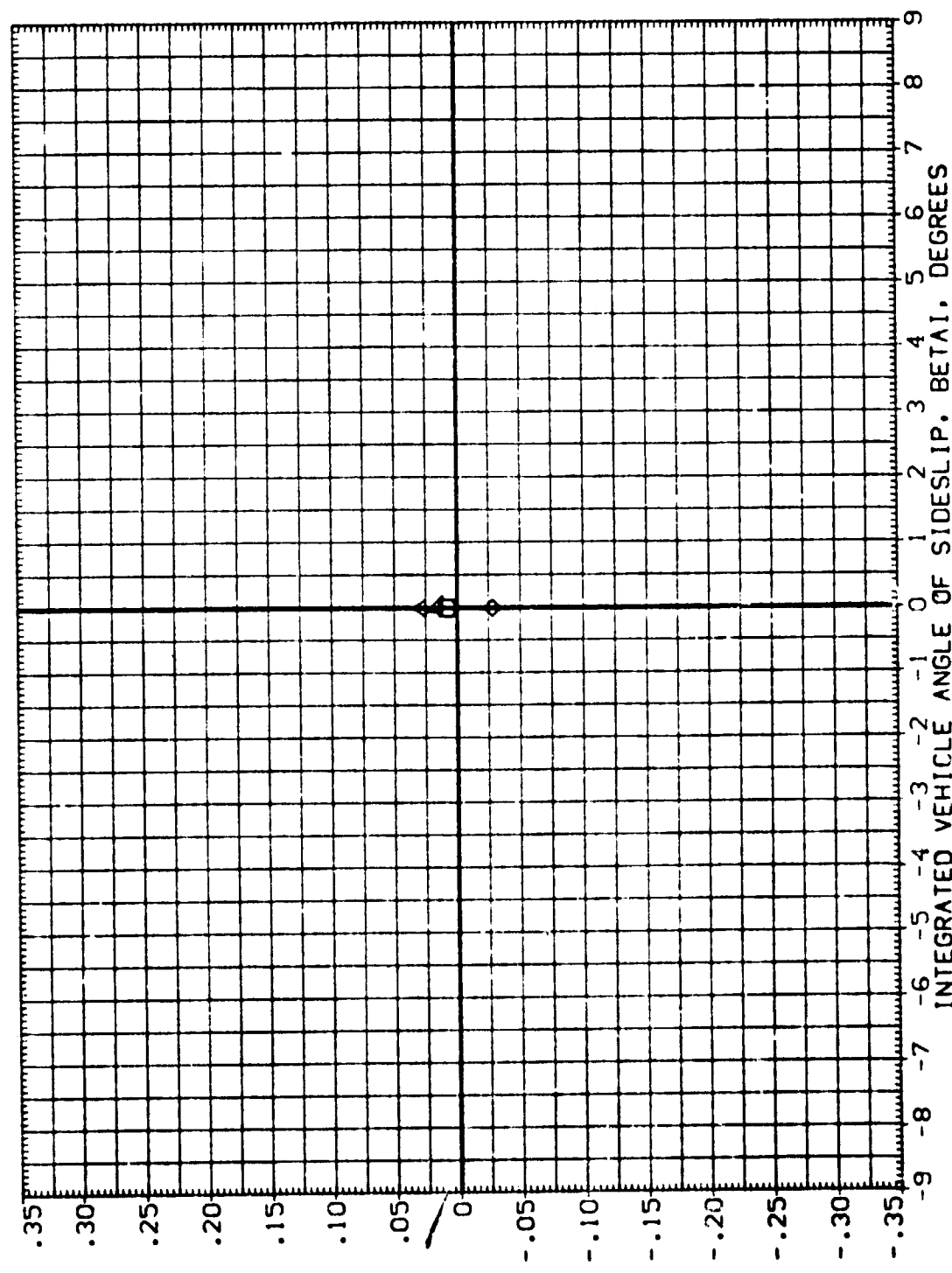


FIG. 2G LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=0/0
 (A) ALPHA = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LETO41)	AMES97-019(1A81) LVAP ORBITER-ALL M SEALED	.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LETT41)	AMES97-019(1A81) LVAP TANK - ALL M SEALED	.000	.000	2.200	.000	LREF 1297.0000 IN.
(LETL41)	AMES97-019(1A81) LVAP L-SRB - ALL M SEALED	.000	.000	2.200	.000	BREF 1297.0000 IN.
(LETR41)	AMES97-019(1A81) LVAP R-LRB - ALL M SEALED	.000	.000	2.200	.000	XMRP 976.0000 IN.
(LETT41)	AMES97-019(1A81) LVAP INT VEH ALL M SEALED	.000	.000	2.200	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

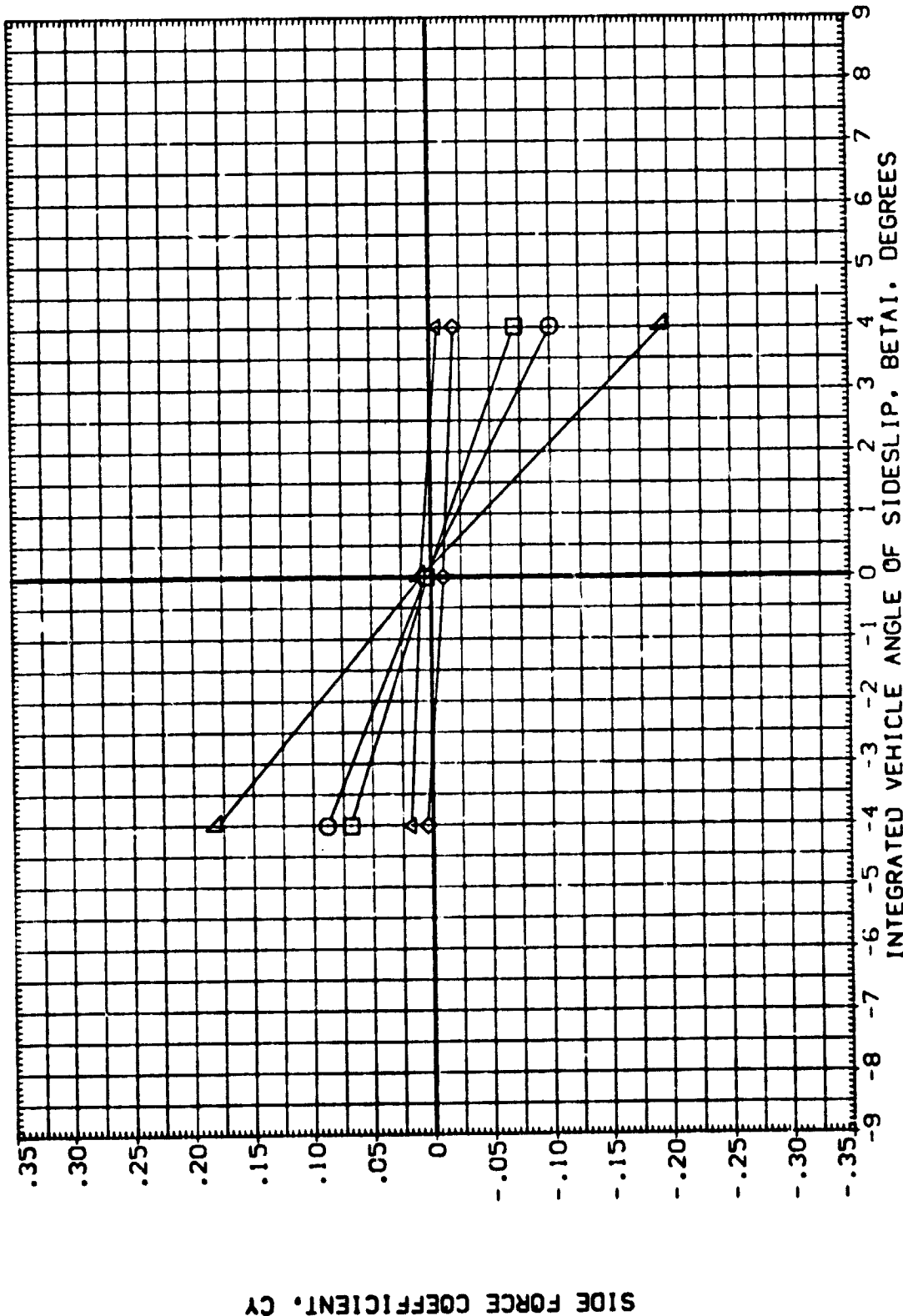


FIG. 26 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=0/0

(B) ALPHA = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LE1041)	AMES97-019(1A1) LVAP ORBITER-ALL ML SEALED	.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LE1141)	AMES97-019(1A1) LVAP TANK - ALL ML SEALED	.000	.000	2.200	.000	LREF 1297.0000 IN.
(LE141)	AMES97-019(1A1) LVAP L-SPB - ALL ML SEALED	.000	.000	2.200	.000	BREF 1297.0000 IN.
(LE141)	AMES97-019(1A1) LVAP R-LPB ALL ML SEALED	.000	.000	2.200	.000	XMRP 976.0000 IN.
(LE141)	AMES97-019(1A1) LVAP INT VEM ALL ML SEALED	.000	.000	2.200	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

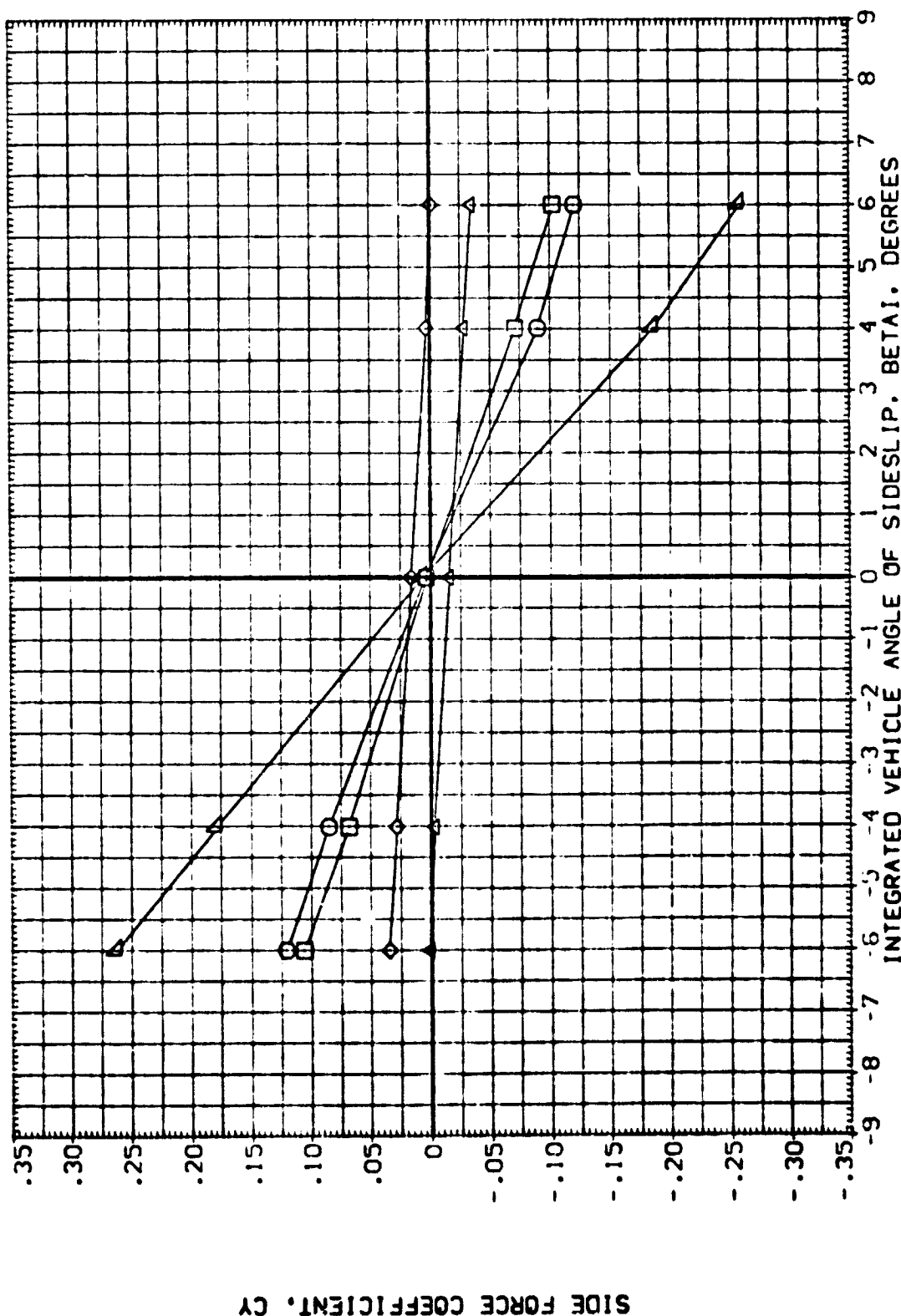


FIG. 2C LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS. M=2.2 DEV=0/0

(C)ALPHA1= .00

DATA SET SYMBOL	CONFIGURATION, DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(LE1041)	AMES97-019(1AB1) LVAP ORBITER-ALL ML SEALED	.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LE1141)	AMES97-019(1AB1) LVAP TANK - ALL ML SEALED	.000	.000	2.200	.000	LREF 1297.0000 IN.
(LE1241)	AMES97-019(1AB1) LVAP L-SRB - ALL ML SEALED	.000	.000	2.200	.000	BREF 1297.0000 IN.
(LE1341)	AMES97-019(1AB1) LVAP R-LRB - ALL ML SEALED	.000	.000	2.200	.000	YMRP 976.0000 IN. XT
(LE1441)	AMES97-019(1AB1) LVAP INT VEM ALL ML SEALED	.000	.000	2.200	.000	ZMRP 400.0000 IN. YT
(LE1541)						SCALE .0300

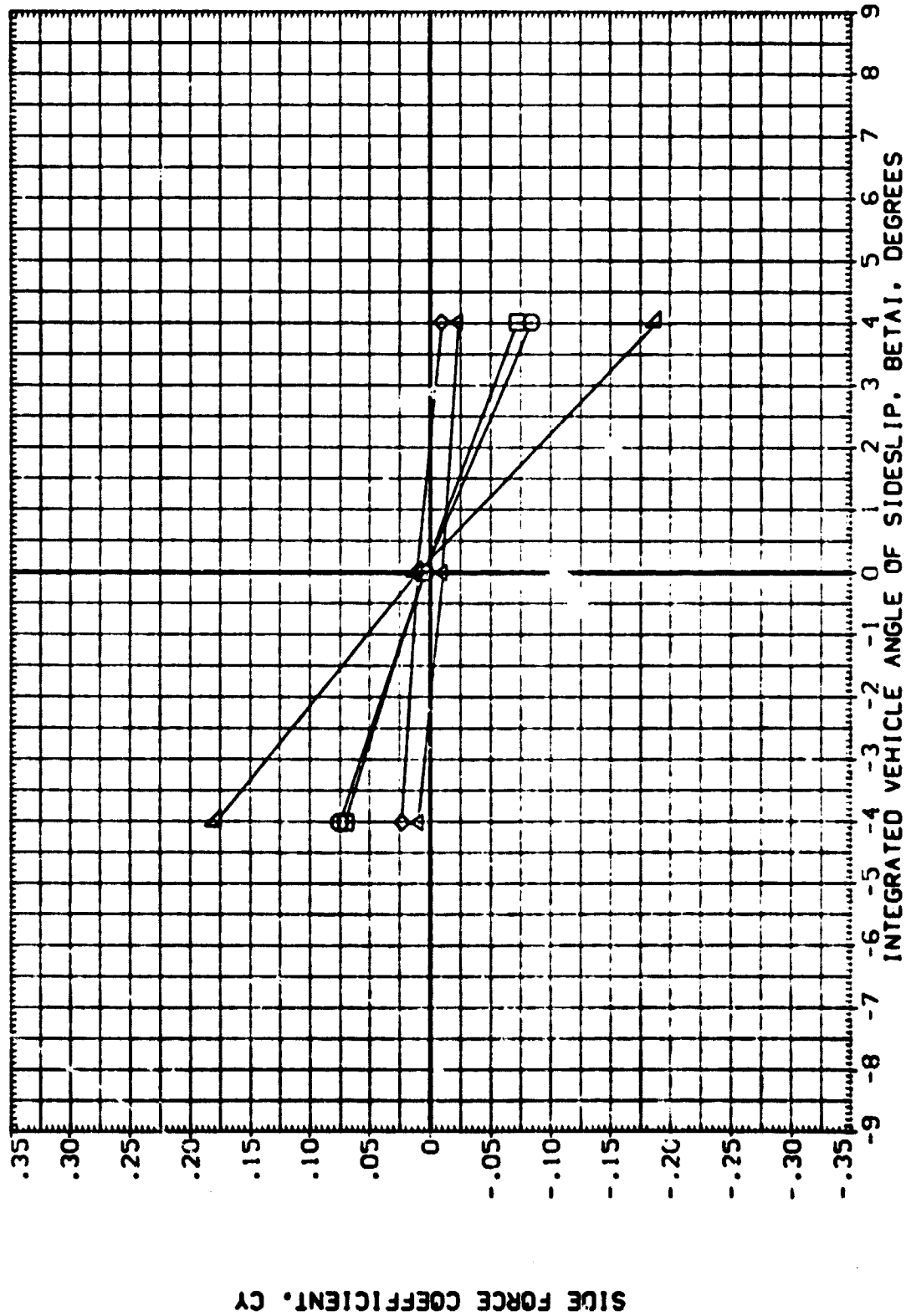


FIG. 26 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=0/0

(D)ALPHA= 4.00

DATA SFT SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(LE104)	AME 537-019 (AB1) LVAP DRB1TER-ALL ML SEALED	.000	.000	2.200	.000	SREF 2690.0000 SO.FT.
(LE114)	AME 537-019 (AB1) LVAP TANK - ALL ML SEALED	.000	.000	2.200	.000	LREF 1297.0000 IN.
(LE114)	AME 537-019 (AB1) LVAP L-SP8 - ALL ML SEALED	.000	.000	2.200	.000	BREF 1297.0000 IN.
(LE114)	AME 537-019 (AB1) LVAP R LHM ALL ML SEALED	.000	.000	2.200	.000	YMRP 976.0000 IN. Y
(LE114)	AME 537-019 (AB1) LVAP INT VEM ALL ML SEALED	.000	.000	2.200	.000	ZMRP 400.0000 IN. Z
						SCALE .0300

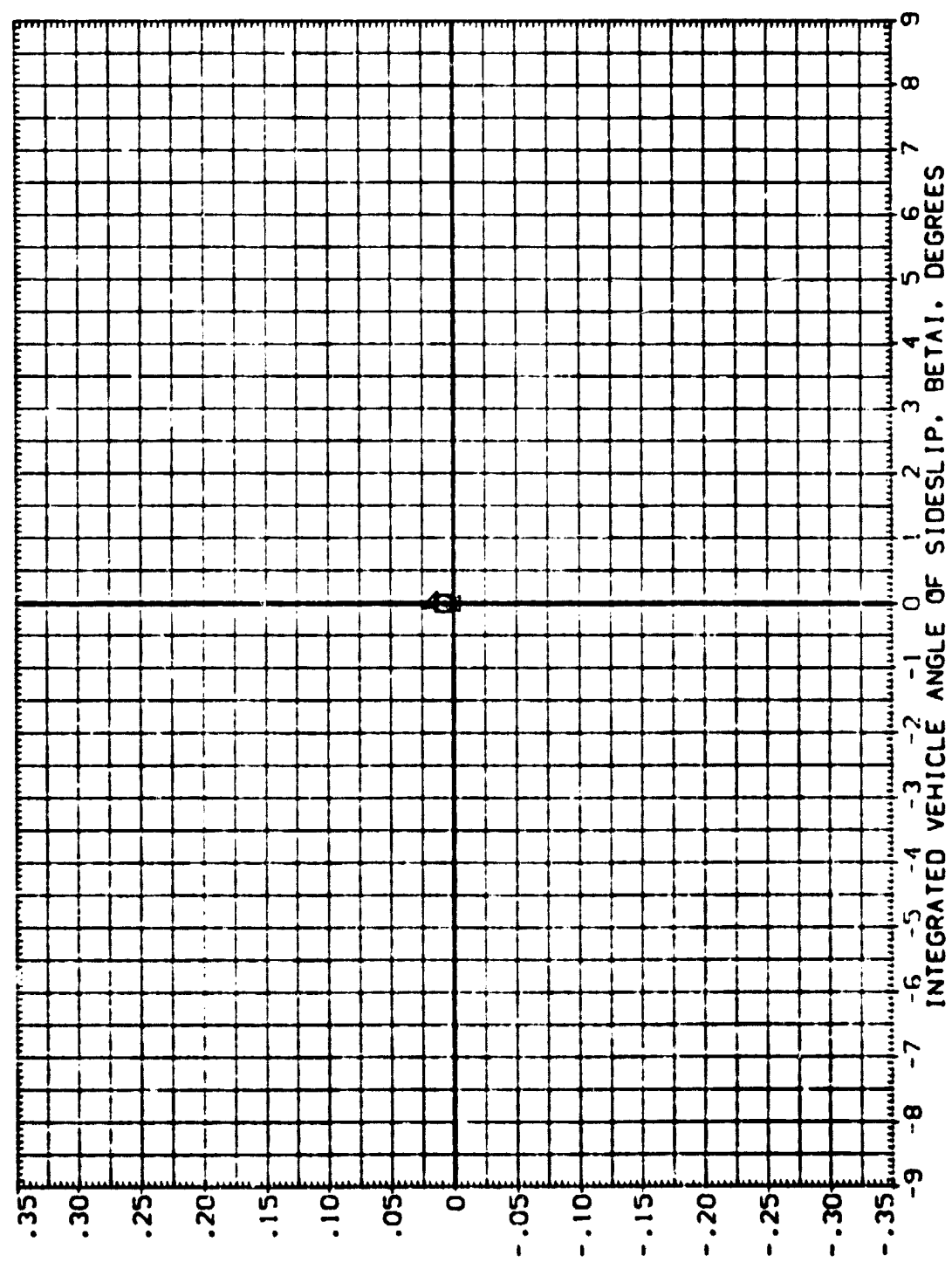
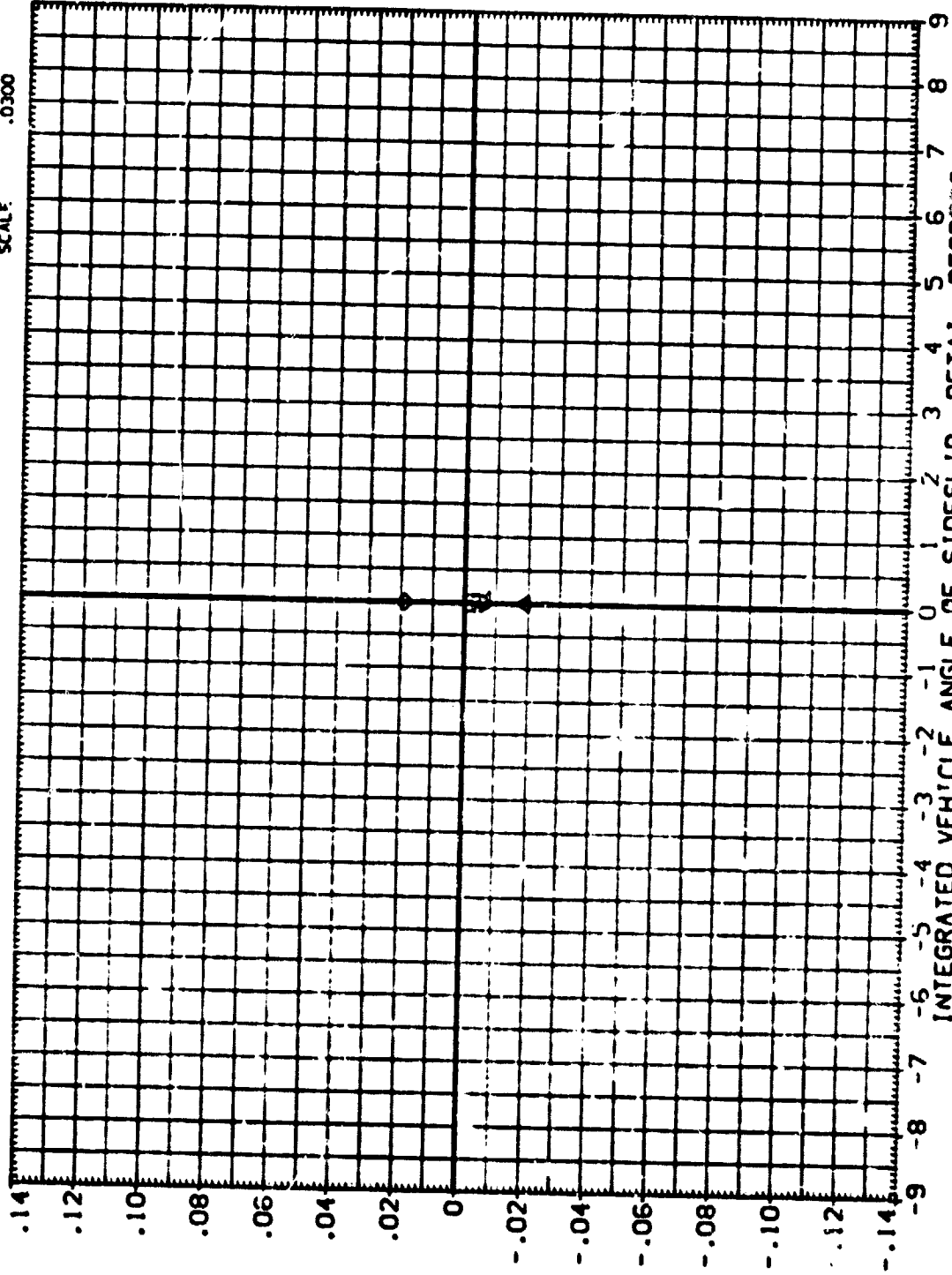


FIG. 26 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=2.2$ $DEV=0/0$
 $(E)ALPHA=6.00$ PAGE 632

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-08	MACH	SP0BRK	REFERENCE INFORMATION
(LE1041)	APES37-019(LAB1) LVAF ORBITER-ALL ML SEALED	.000	.000	2.200	.000	SREF 2690.0000 SO.FT.
(LE1141)	APES37-019(LAB1) LVAF TANK - ALL ML SEALED	.000	.000	2.200	.000	LREF 1297.0000 IN.
(LE1241)	APES37-019(LAB1) LVAF L-CPB - ALL ML SEALED	.000	.000	2.200	.000	BREF 1297.0000 IN.
(LE1341)	APES37-019(LAB1) LVAF P-LPB ALL ML SEALED	.000	.000	2.200	.000	YMRP 976.0000 IN. XT
(LE1441)	APES37-019(LAB1) LVAF INT VEH ALL ML SEALED	.000	.000	2.200	.000	ZMRP 400.0000 IN. YT
						SCALE .0300



FOREBODY YAWING MOMENT COEFFICIENT, C_{ymf}

FIG. 26 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=0/0
(A)ALPHA1= -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(LE1041)	AMES97-019(1AB1) LVAP ORBITER-ALL HL SEALED	.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LE1141)	AMES97-019(1AB1) LVAP TANK - ALL HL SEALED	.000	.000	2.200	.000	LREF 1297.0000 IN.
(LE141)	AMES97-019(1AB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.200	.000	BREF 1297.0000 IN.
(LE141)	AMES97-019(1AB1) LVAP R-LPB - ALL HL SEALED	.000	.000	2.200	.000	XMRP 976.0000 IN.
(LE141)	AMES97-019(1AB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.200	.000	ZMRP 400.0000 IN.
						SCALE .0300

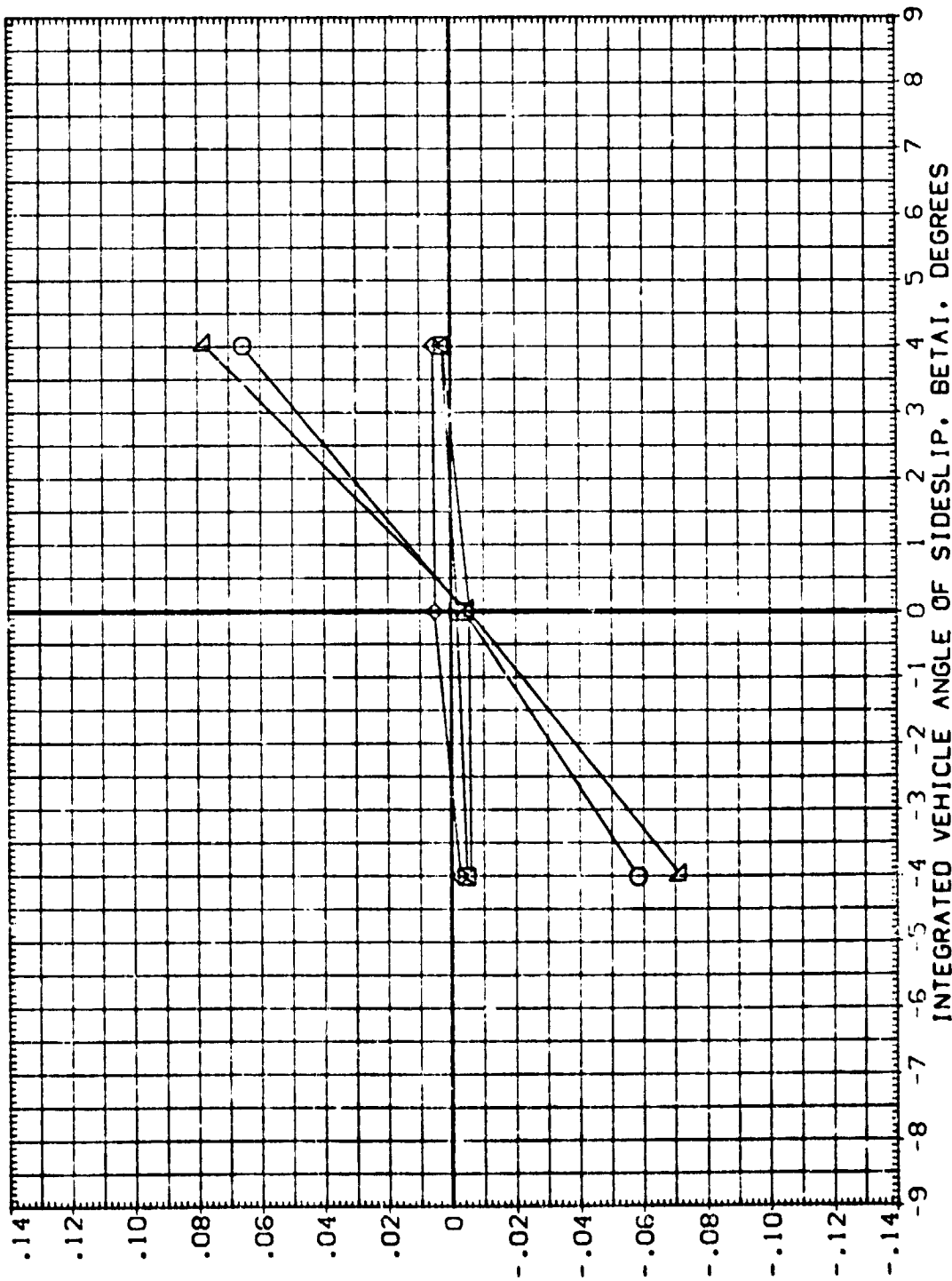


FIG. 26 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=0/0
(B)ALPHAI= -4.00

REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(LETD41)	AME597-019(1A81) LVAP ORBITER-ALL HL SEALED	.000	.000	2.200	.000	SREF 2690.7000
(LETT41)	AME597-019(1A81) LVAP TANK - ALL HL SEALED	.000	.000	2.200	.000	LREF 1297.0000
(LETL41)	AME597-019(1A81) LVAP L-SRB - ALL HL SEALED	.000	.000	2.200	.000	BREF 1297.0000
(LETR41)	AME597-019(1A81) LVAP R-LPB ALL HL SEALED	.000	.000	2.200	.000	YMRP 976.0000
(LETT41)	AME597-019(1A81) LVAP INT VEH ALL HL SEALED	.000	.000	2.200	.000	ZMRP 400.3000
						SCALE .0300

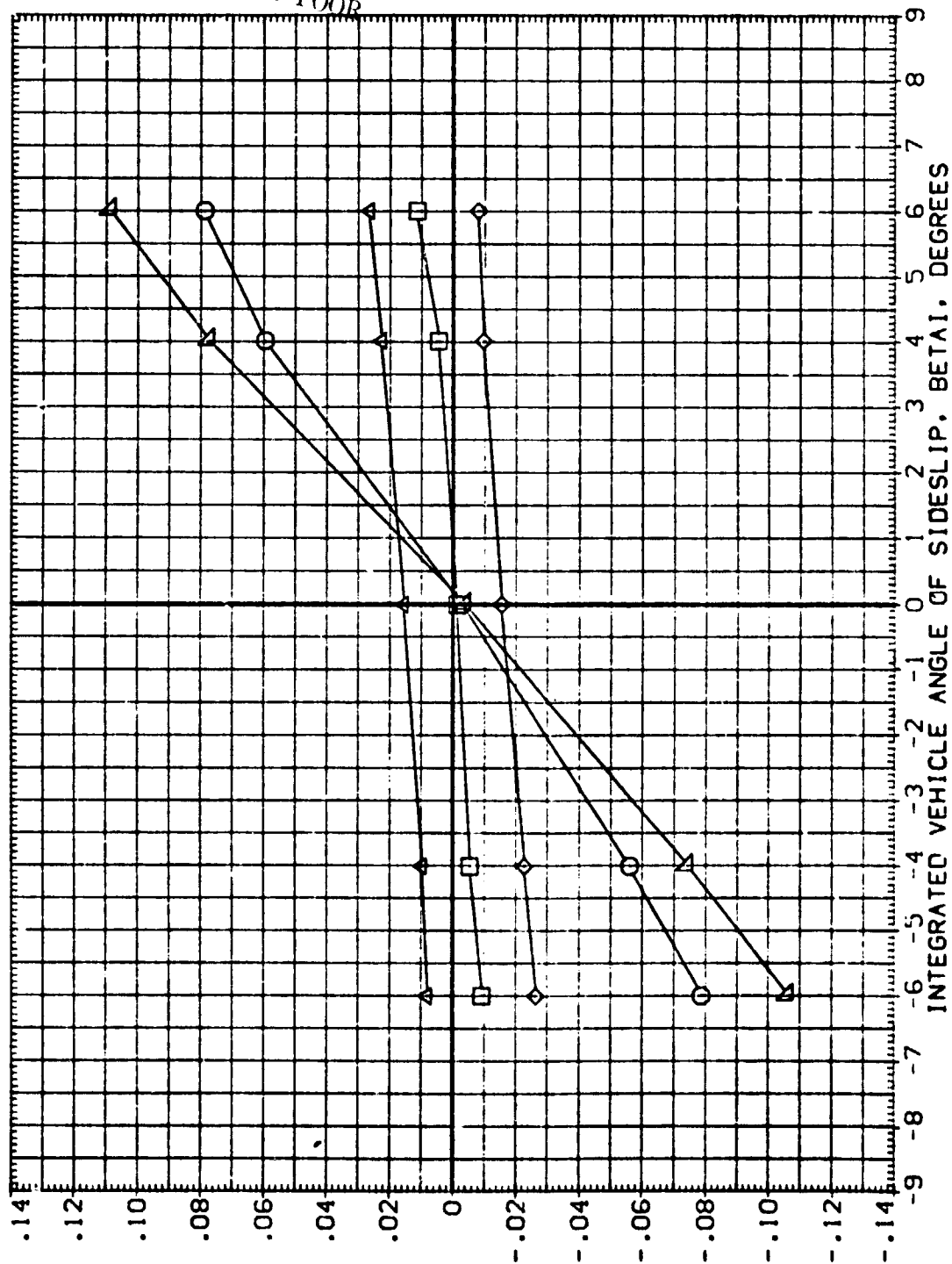


FIG. 26 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=0/0

(C)ALPHA= .00

DATA SET SYMBOL CONFIGURATION DESCRIPTION ELV-1B ELV-0B MACH SPDBRK REFERENCE INFORMATION

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(LETO41)	AMES97-019(IAB1) LVAP CRBITER-ALL HL SEALED	.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LETT41)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.200	.000	LREF 1297.0000 IN.
(LETL41)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.200	.000	BREF 1297.0000 IN.
(LETR41)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	.000	.000	2.200	.000	YMRP 976.0000 IN.
(LETT41)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.200	.000	ZMRP 400.0000 IN.
						SCALE .0300

FOREBODY YAWING MOMENT COEFFICIENT, C_{YMF}

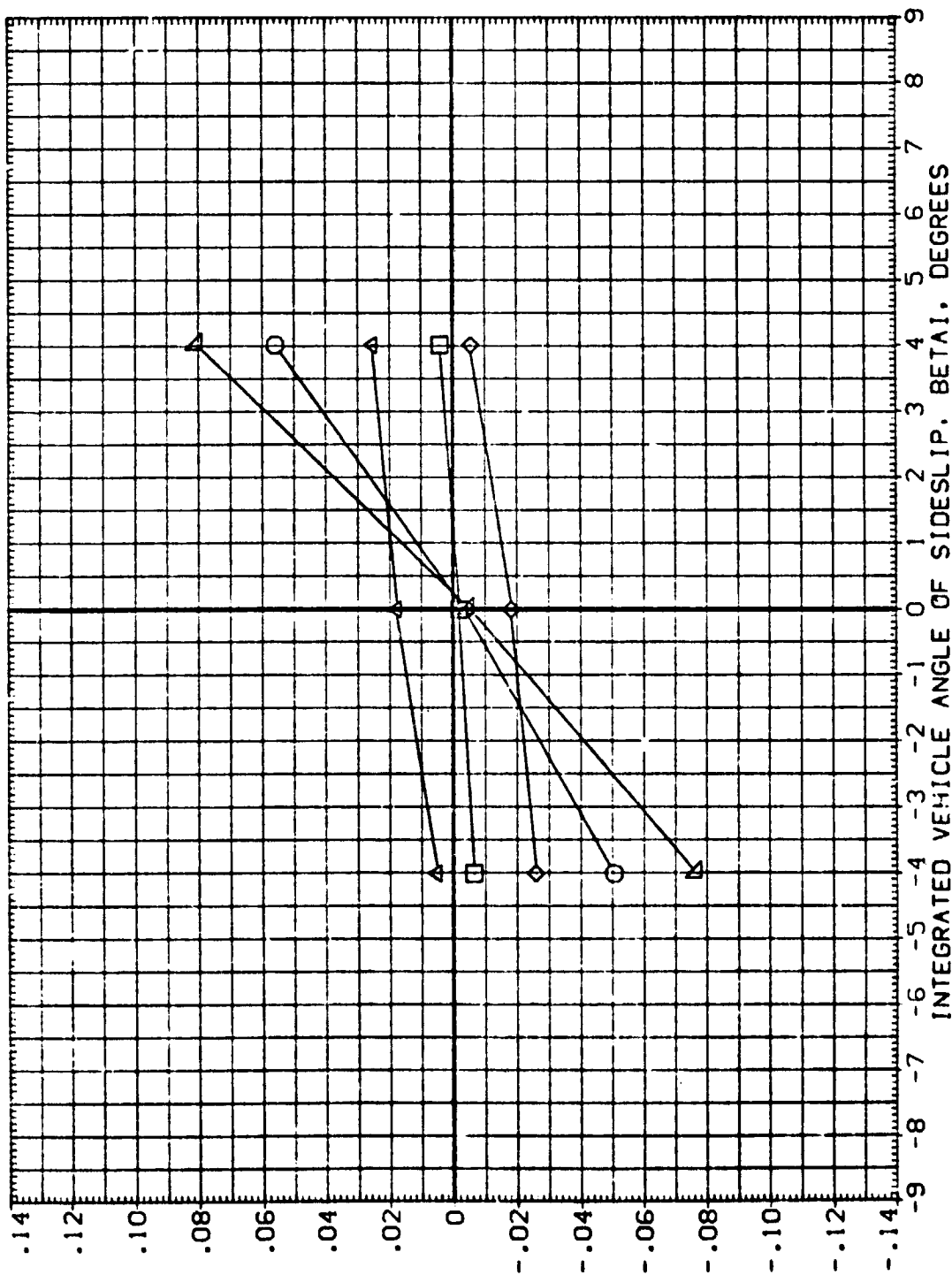


FIG. 26 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=0/0
(C)ALPHA= 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-DB	MACH	SPOBRK	REFERENCE INFORMATION
(LETO41)	AMES97-019(TAB1) LVAP	.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LETT41)	AMES97-019(TAB1) LVAP	.000	.000	2.200	.000	LREF 1297.0000 IN.
(LETL41)	AMES97-019(TAB1) LVAP	.000	.000	2.200	.000	BREF 1297.0000 IN.
(LETR41)	AMES97-019(TAB1) LVAP	.000	.000	2.200	.000	XMRP 976.0000 IN. XT
(LETT41)	AMES97-019(TAB1) LVAP	.000	.000	2.200	.000	YMRP 400.0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

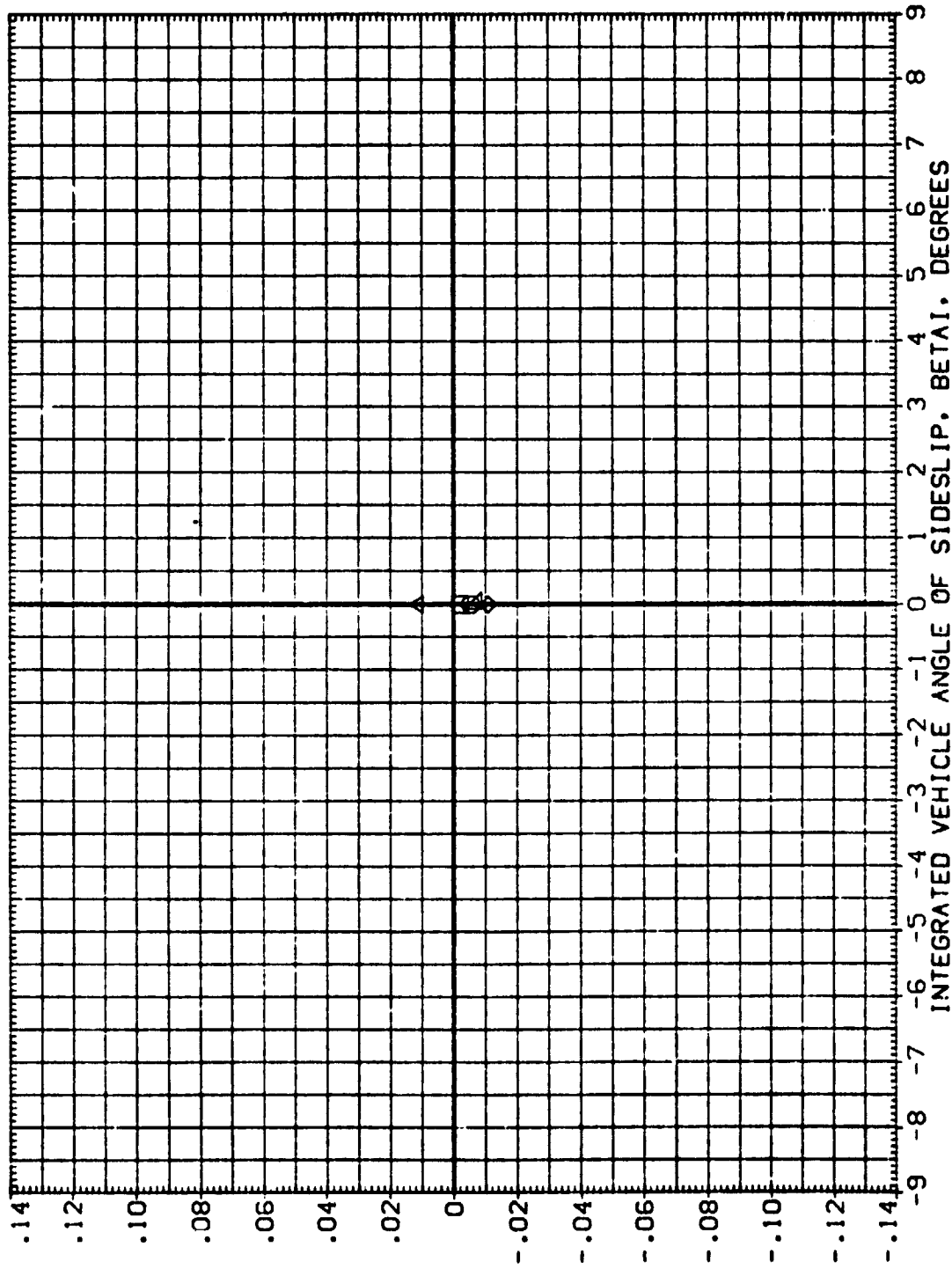


FIG. 26 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=0/0

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(LETO41)	□	AME597-019(1A81) LVAP ORBITER-ALL HL SEALED	.000	.000	2.200	.000	SREF 2690.0000 SO.FT.
(LETT41)	□	AME597-019(1A81) LVAP TANK - ALL HL SEALED	.000	.000	2.200	.000	LR.F 1297.0000 IN.
(LETL41)	□	AME597-019(1A81) LVAP L-SRB - ALL HL SEALED	.000	.000	2.200	.000	BREF 1297.0000 IN.
(LETR41)	□	AME597-019(1A81) LVAP R-LRB - ALL HL SEALED	.000	.000	2.200	.000	XMRP 976.0000 IN.
(LETT41)	□	AME597-019(1A81) LVAP INT VEH ALL HL SEALED	.000	.000	2.200	.000	YMRP .0000 IN.
							ZMRP 400.0000 IN.
							SCALE .0300

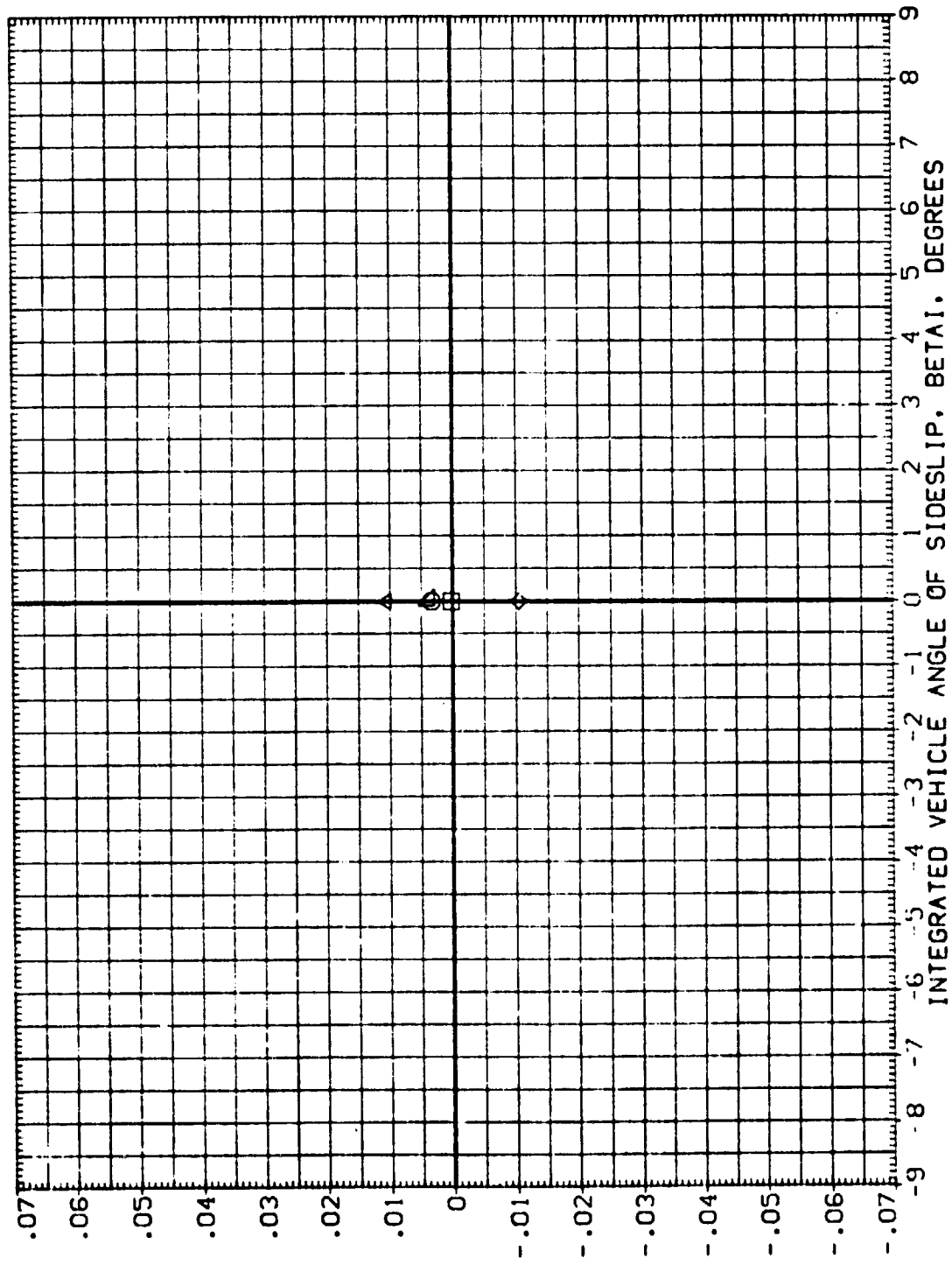


FIG. 26 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=0/0

(A) ALPHA = -6.00 PAGE 638

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LET041)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LET141)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.200	.000	LREF 1297.0000 IN.
(LET141)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.200	.000	BREF 1297.0000 IN.
(LET141)	AMES97-019(IAB1) LVAP R-SRB - ALL HL SEALED	.000	.000	2.200	.000	YMRP 976.0000 IN.
(LET141)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.200	.000	ZMRP 400.0000 IN.
						SCALE .0300

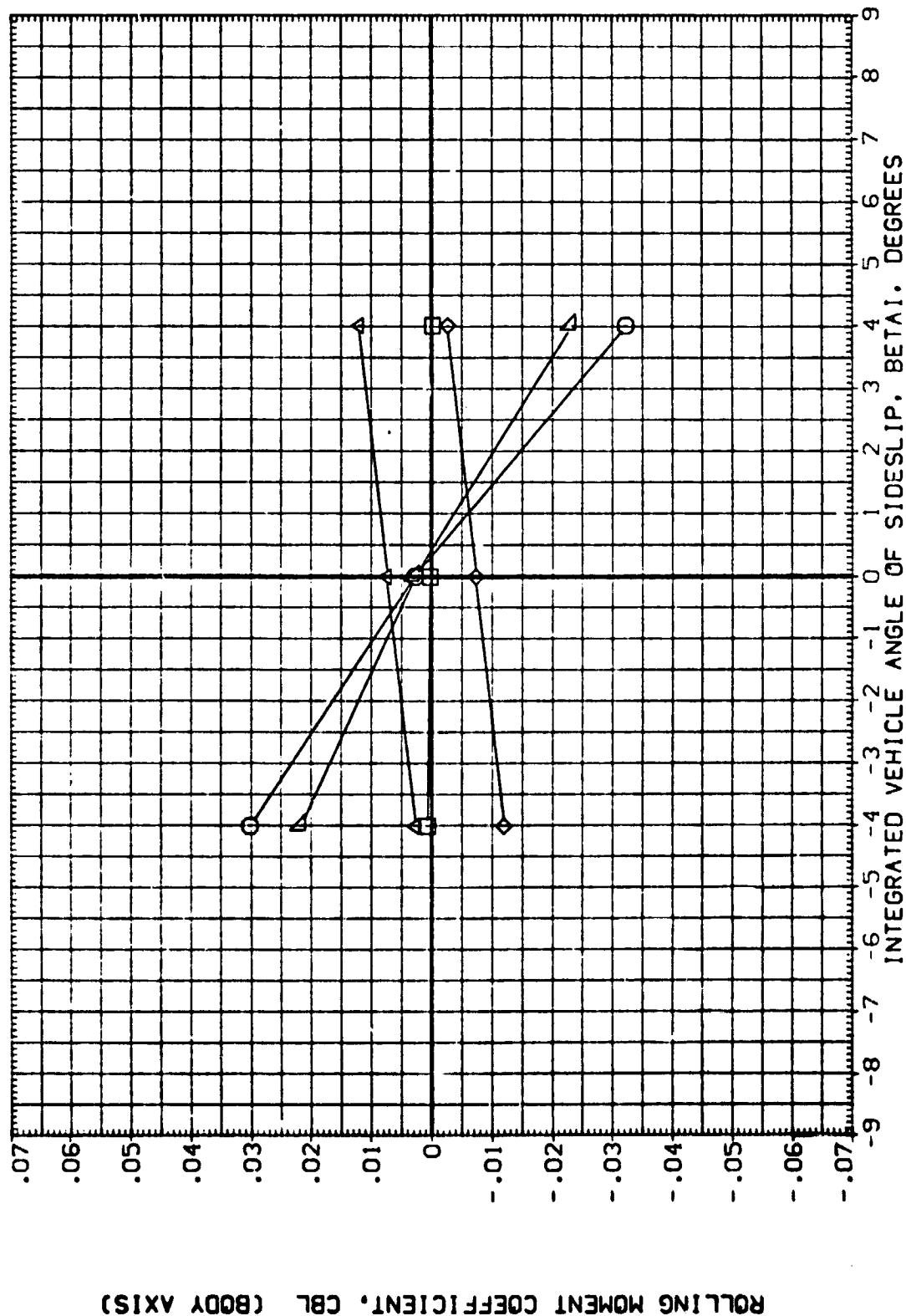


FIG. 26 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=0/0

(B) ALPHA = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(LETO41)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	.000	.000	2.200	.000	SREF 2690.0000 SO.FT.
(LETT41)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.200	.000	LREF 1297.0000 IN.
(LETL41)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.200	.000	BREF 1297.0000 IN.
(LETR41)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	.000	.000	2.200	.000	XMRP 976.0000 IN.
(LETT41)	AMES97-019(IAB1) LVAP IN: VEH ALL HL SEALED	.000	.000	2.200	.000	YMRP .0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

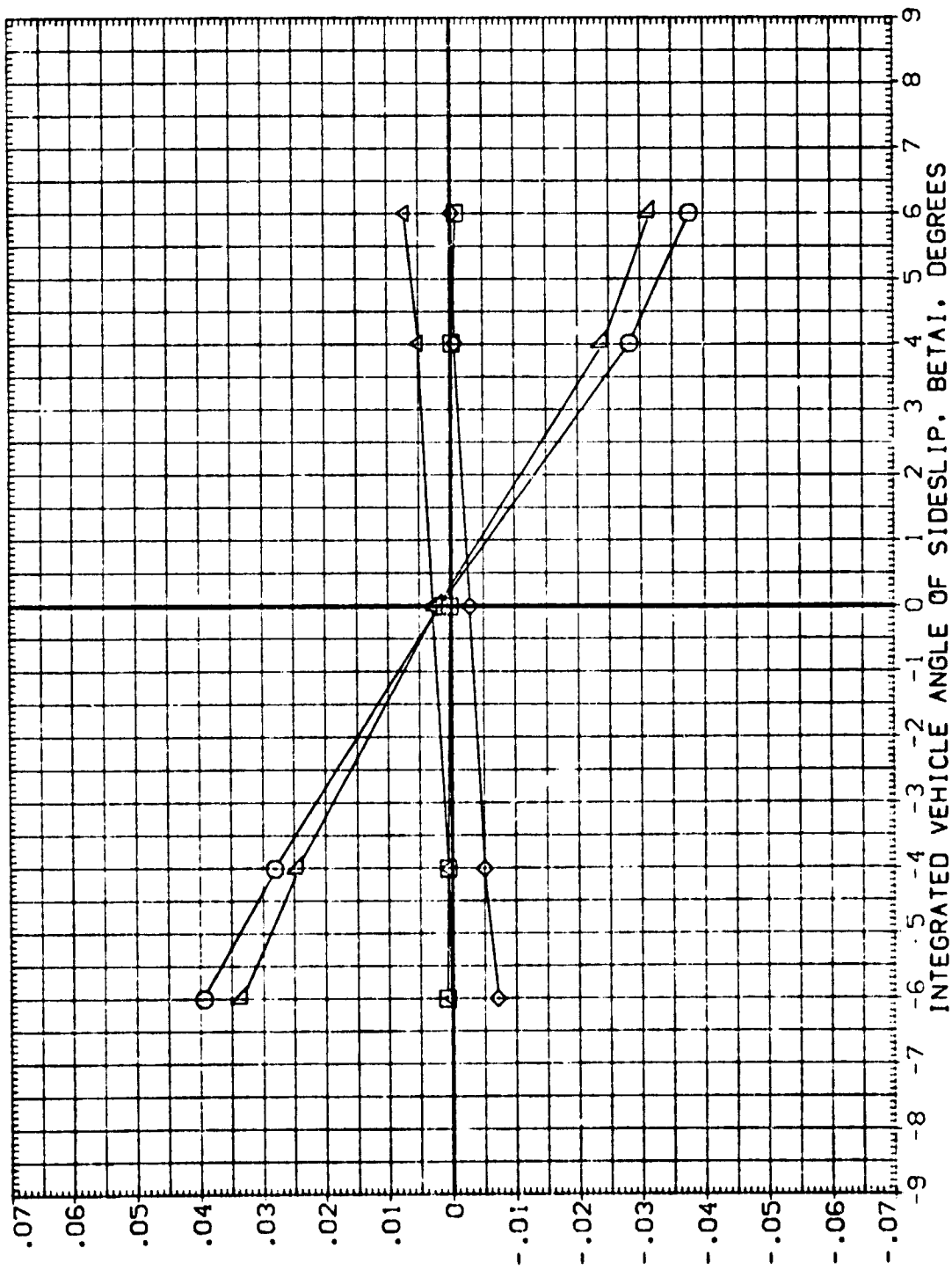


FIG. 26 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=0/0

(C)ALPHA= .00 PAGE 640

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LE1041)	AME597-0191(AB1) LVAP ORBITER-ALL HL SEALED	.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LE1141)	AME597-0191(AB1) LVAP TANK - ALL HL SEALED	.000	.000	2.200	.000	LRLF 1297.0000 IN.
(LE1241)	AME597-0191(AB1) LVAP L-GRS - ALL HL SEALED	.000	.000	2.200	.000	BREF 1297.0000 IN.
(LE1341)	AME597-0191(AB1) LVAP R-GRS - ALL HL SEALED	.000	.000	2.200	.000	XMRP 976.0000 IN.
(LE1441)	AME597-0191(AB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.200	.000	ZMRP 400.0000 IN.
						SCALE .0300

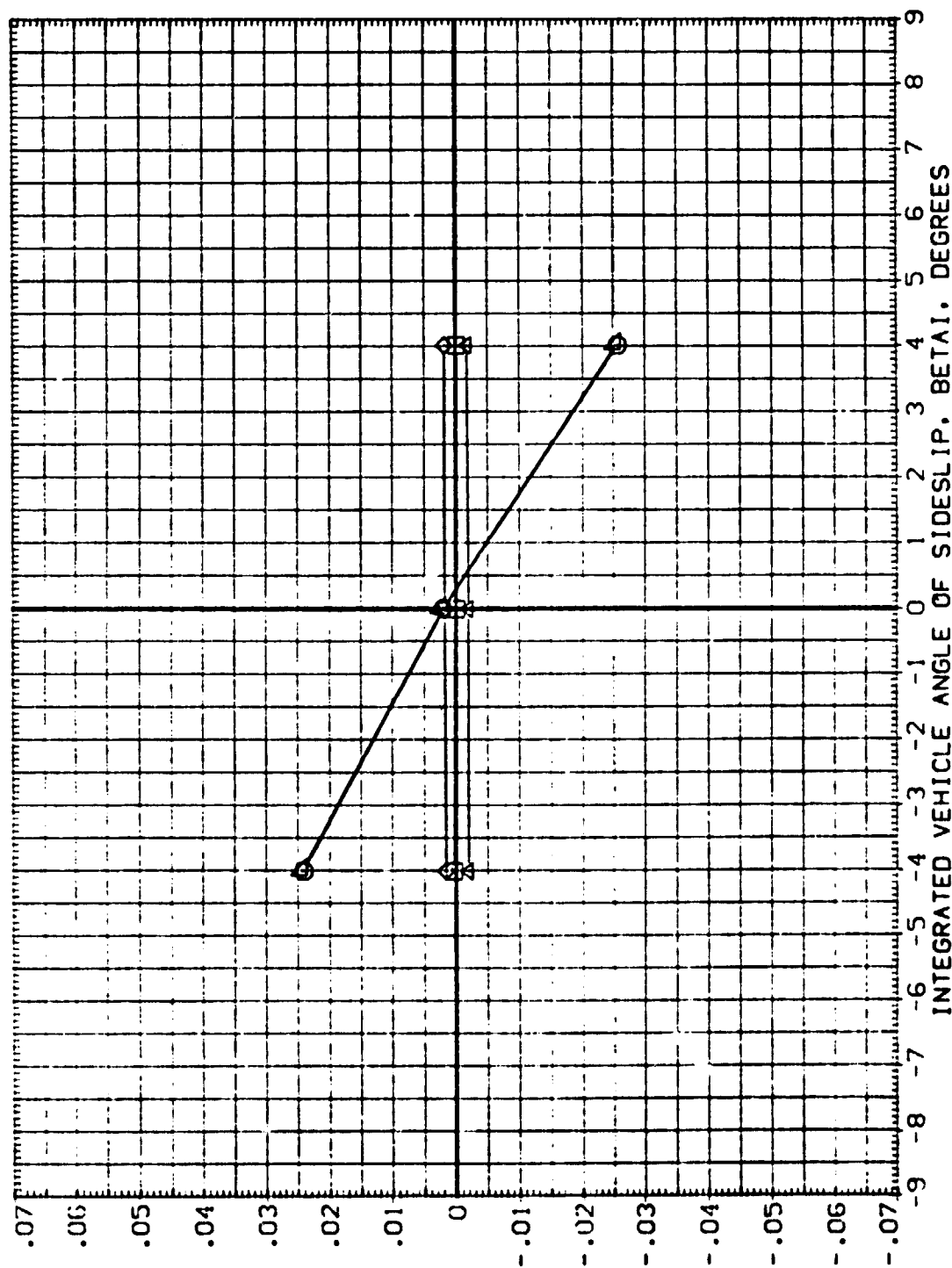


FIG. 26 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=0/0

(D)ALPHA= 4.00

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPOBRK	REFERENCE INFORMATION
(LE1041)	□	AMES97-019(1AB1) LVAP DRBITER-ALL HL SEALED	.000	.000	2.200	.000	SREF 2690.0000 SO.FT.
(LE1741)	□	AMES97-019(1AB1) LVAP TANK - ALL HL SEALED	.000	.000	2.200	.000	LREF 1297.0000 IN.
(LE1741)	□	AMES97-019(1AB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.200	.000	BREF 976.0000 IN. XT
(LE1741)	□	AMES97-019(1AB1) LVAP R-LRB ALL HL SEALED	.000	.000	2.200	.000	YHRP .0000 IN. YT
(LE1741)	□	AMES97-019(1AB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.200	.000	ZHRP 400.0000 IN. ZT
							SCALE .0300

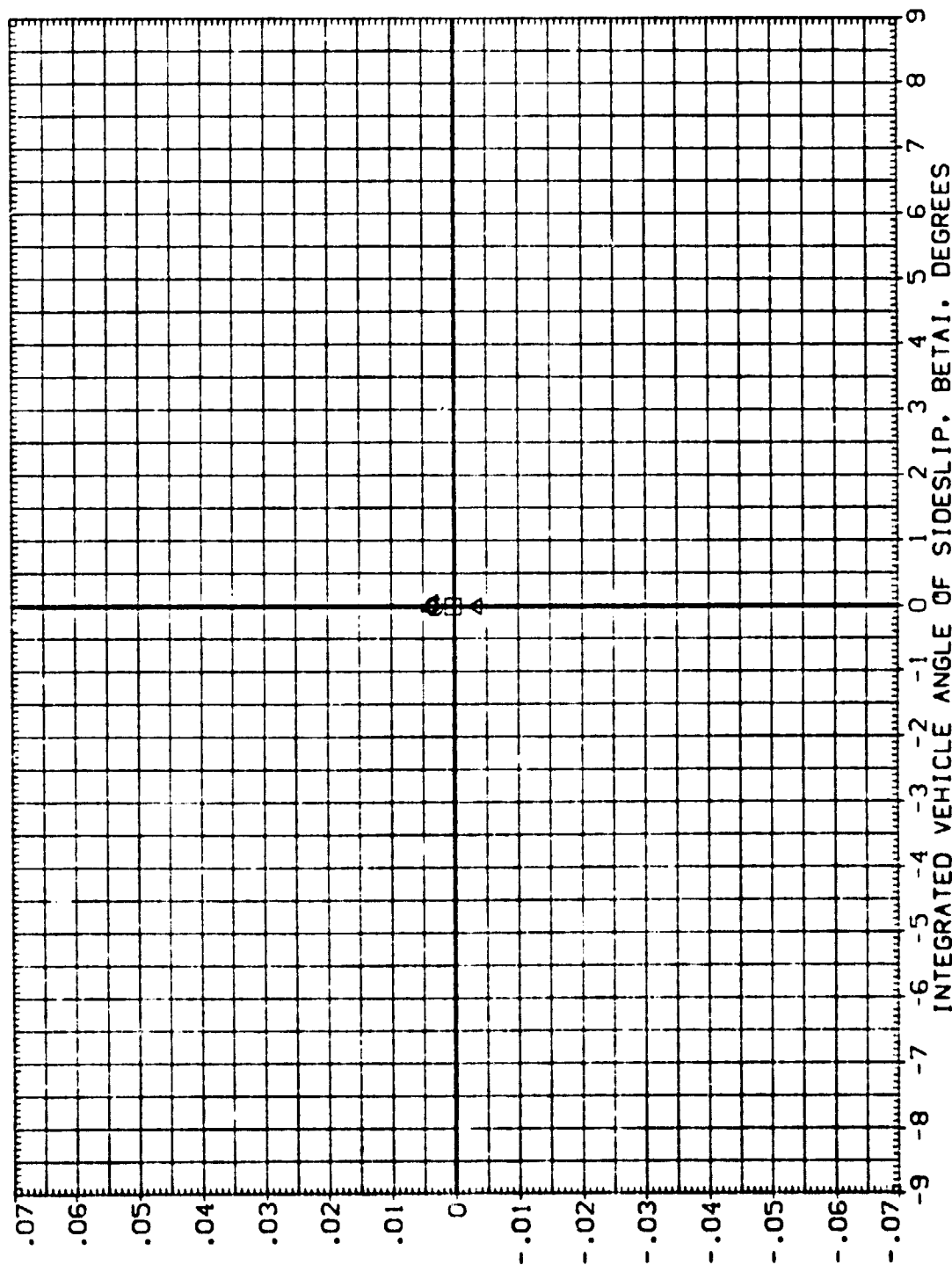


FIG. 26 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=0/0

(E) ALPHA = 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LETO41)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LETT41)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.200	.000	LREF 1297.0000 IN.
(LETL41)	AMES97-019(IAB1) LVAP L-SPB - ALL HL SEALED	.000	.000	2.200	.000	BREF 1297.0000 IN.
(LETR41)	AMES97-019(IAB1) LVAP R-LPB ALL HL SEALED	.000	.000	2.200	.000	VMRP 976.0000 IN. XT
(LETT41)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.200	.000	VMRP 400.0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

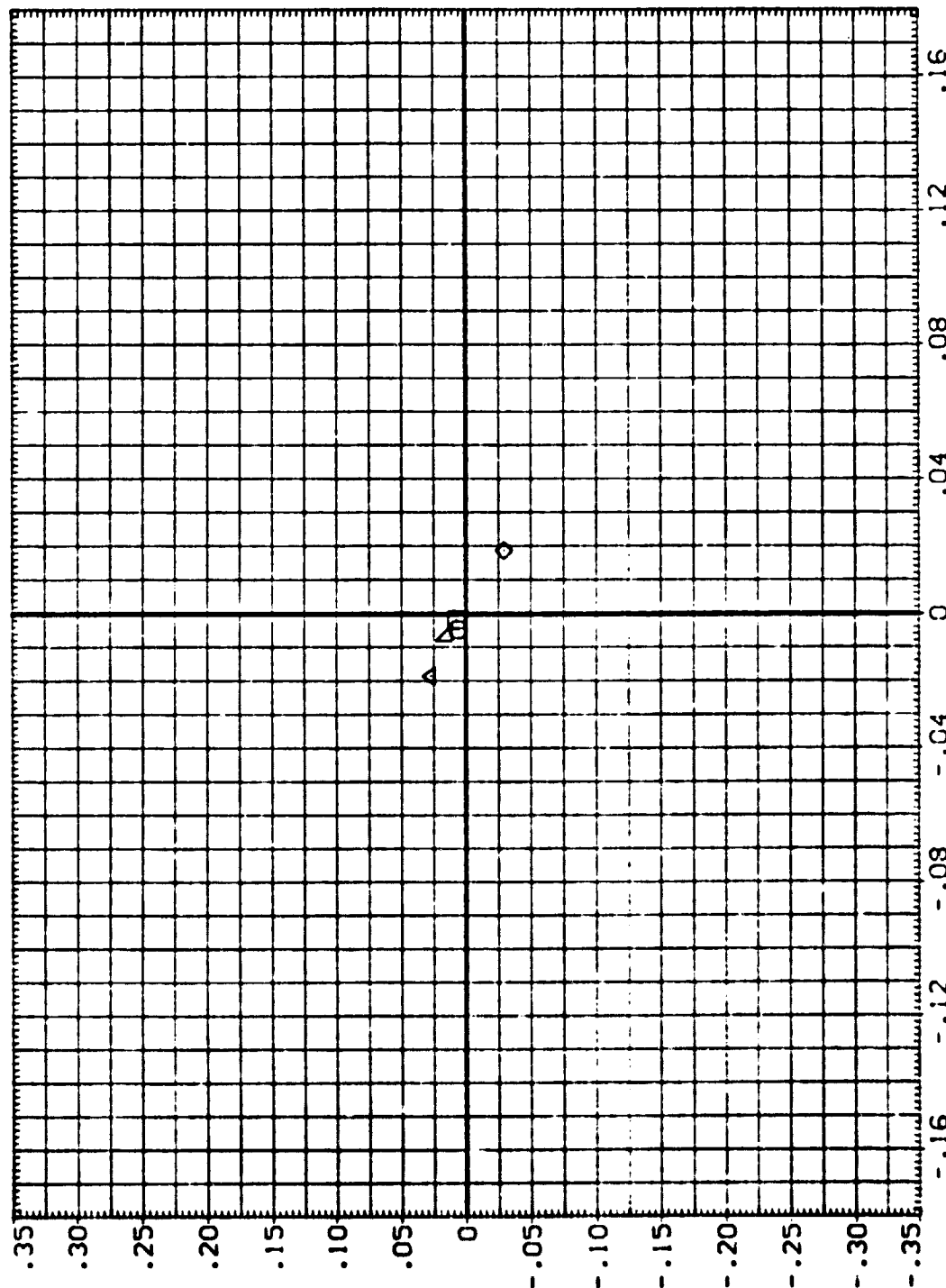


FIG. 26 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS. M=2.2 DEV=0/0

(A) ALPHA = 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDRK	REFERENCE INFORMATION
(LETO41)	AMES97-019(1A81) LVAP	.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LETT41)	AMES97-019(1A81) LVAP	.000	.000	2.200	.000	LREF 1297.0000 IN.
(LETL41)	AMES97-019(1A81) LVAP	.000	.000	2.200	.000	BREF 1297.0000 IN.
(LETR41)	AMES97-019(1A81) LVAP	.000	.000	2.200	.000	YMRP 976.0000 IN.
(LETT41)	AMES97-019(1A81) LVAP	.000	.000	2.200	.000	YMRP 976.0000 IN.
(LETT41)	AMES97-019(1A81) LVAP	.000	.000	2.200	.000	ZMRP 400.0000 IN.
						SCALE .0300

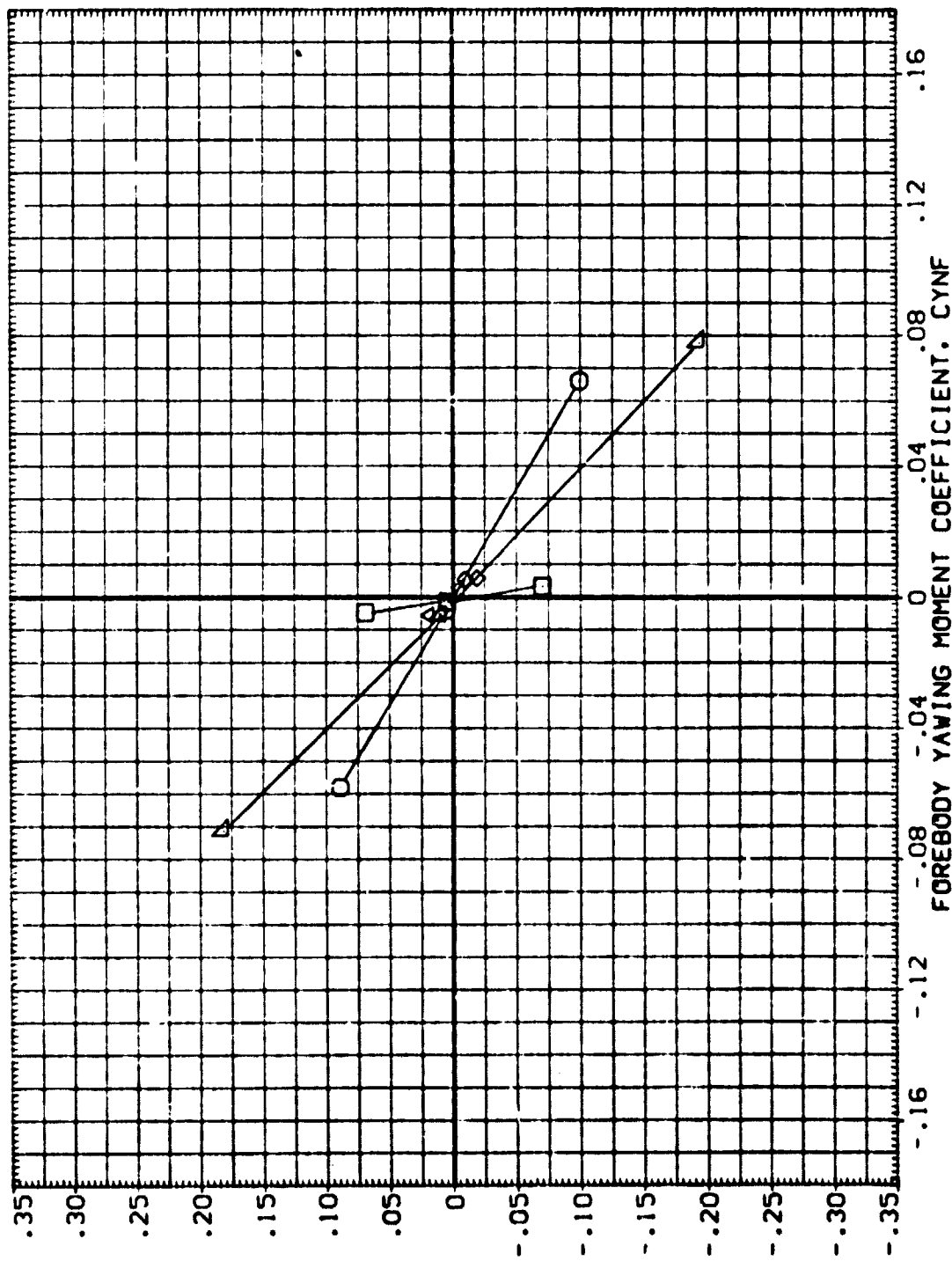


FIG. 26 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=0/0
(B) ALPHA = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPOBRK	REFERENCE INFORMATION
(LETO41)	APES97-0191(AB1) LVAP ORBITER-ALL ML SEALED	.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LETT41)	APES97-0191(AB1) LVAP TANK - ALL ML SEALED	.000	.000	2.200	.000	LREF 1297.0000 IN.
(LETL41)	APES97-0191(AB1) LVAP L-SPB - ALL ML SEALED	.000	.000	2.200	.000	BREF 1297.0000 IN.
(LETR41)	APES97-0191(AB1) LVAP R-LRB ALL ML SEALED	.000	.000	2.200	.000	AMRP 976.0000 IN.
(LETT41)	APES97-0191(AB1) LVAP INT VEM ALL ML SEALED	.000	.000	2.200	.000	VMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

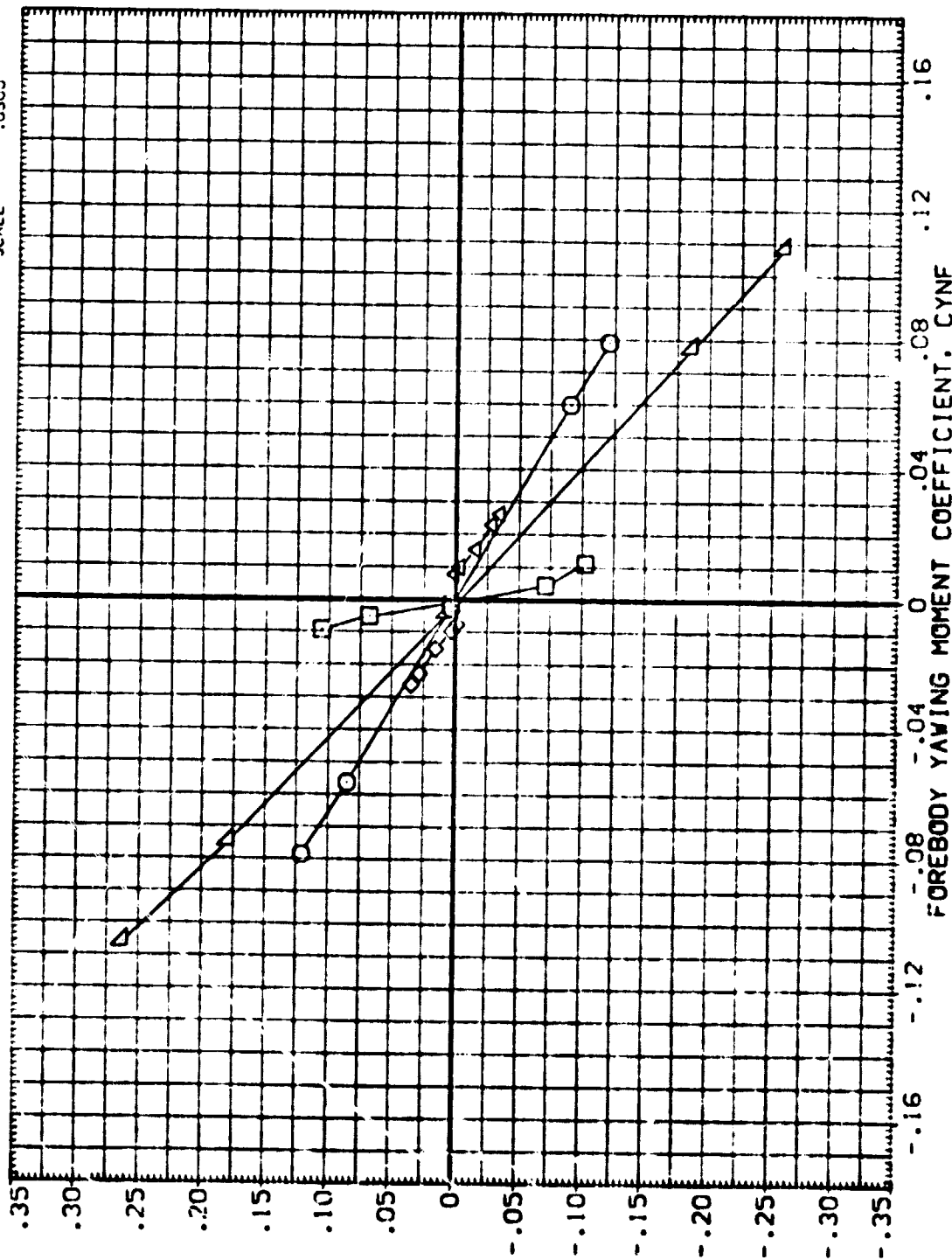


FIG. 26 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=0/0

(C)ALPHA1= .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-28	MACH	SPDRBK	REFERENCE INFORMATION
(LE1141)	AME597-019(1A81) LVAP CRBITER-ALL HL SEALED	.000	.000	2.200	.000	SREF 2693.0000 SC.FT.
(LE1141)	AME597-019(1A81) LVAP TANK - ALL HL SEALED	.000	.000	2.200	.000	LREF 1297.0000 IN.
(LE1141)	AME597-019(1A81) LVAP L-S48 - ALL HL SEALED	.000	.000	2.200	.000	BREF 1297.0000 IN.
(LE1141)	AME597-019(1A81) LVAP R-LPB - ALL HL SEALED	.000	.000	2.200	.000	XMRP 976.0000 IN.
(LE1141)	AME597-019(1A81) LVAP INT VEH ALL HL SEALED	.000	.000	2.200	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

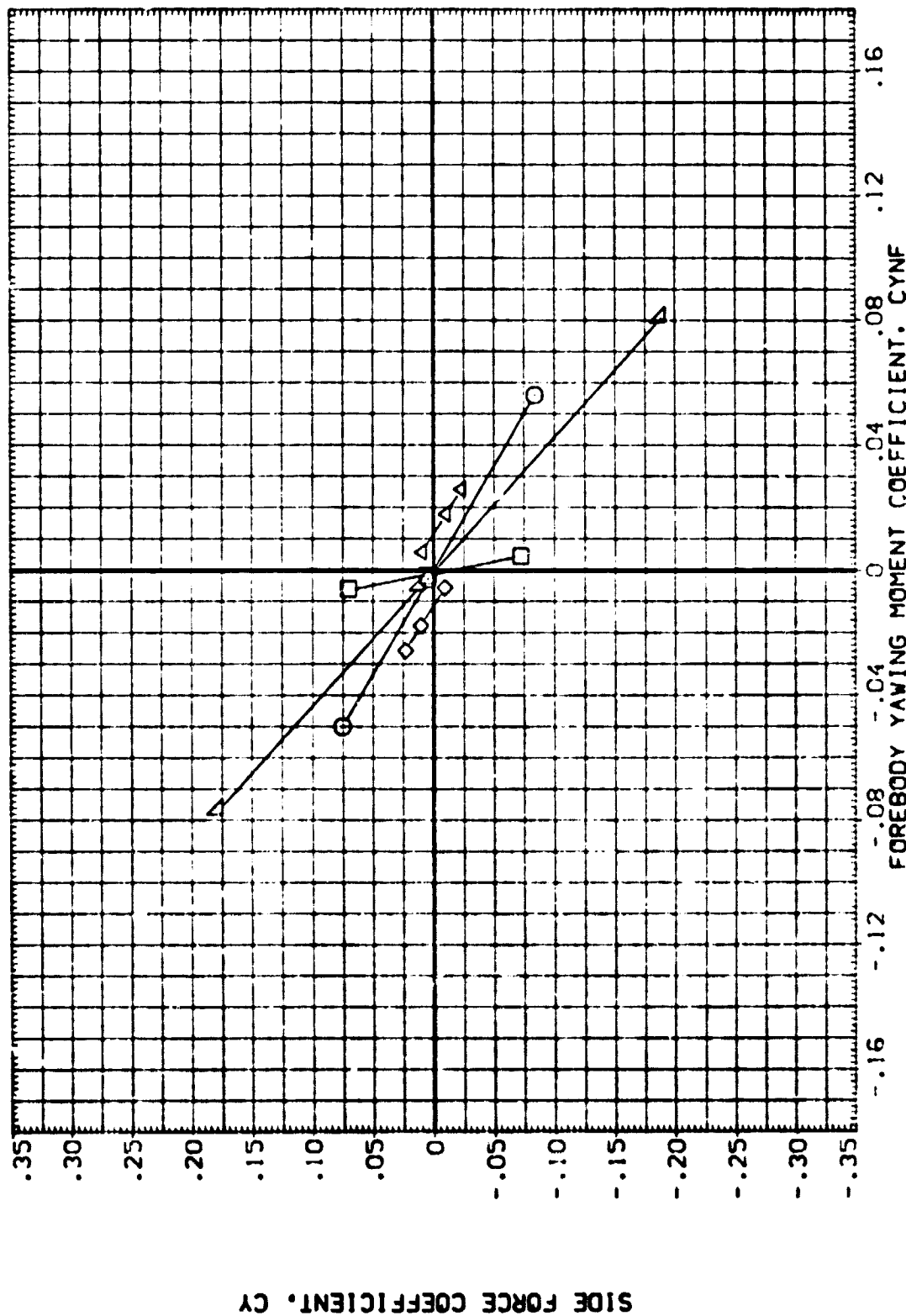
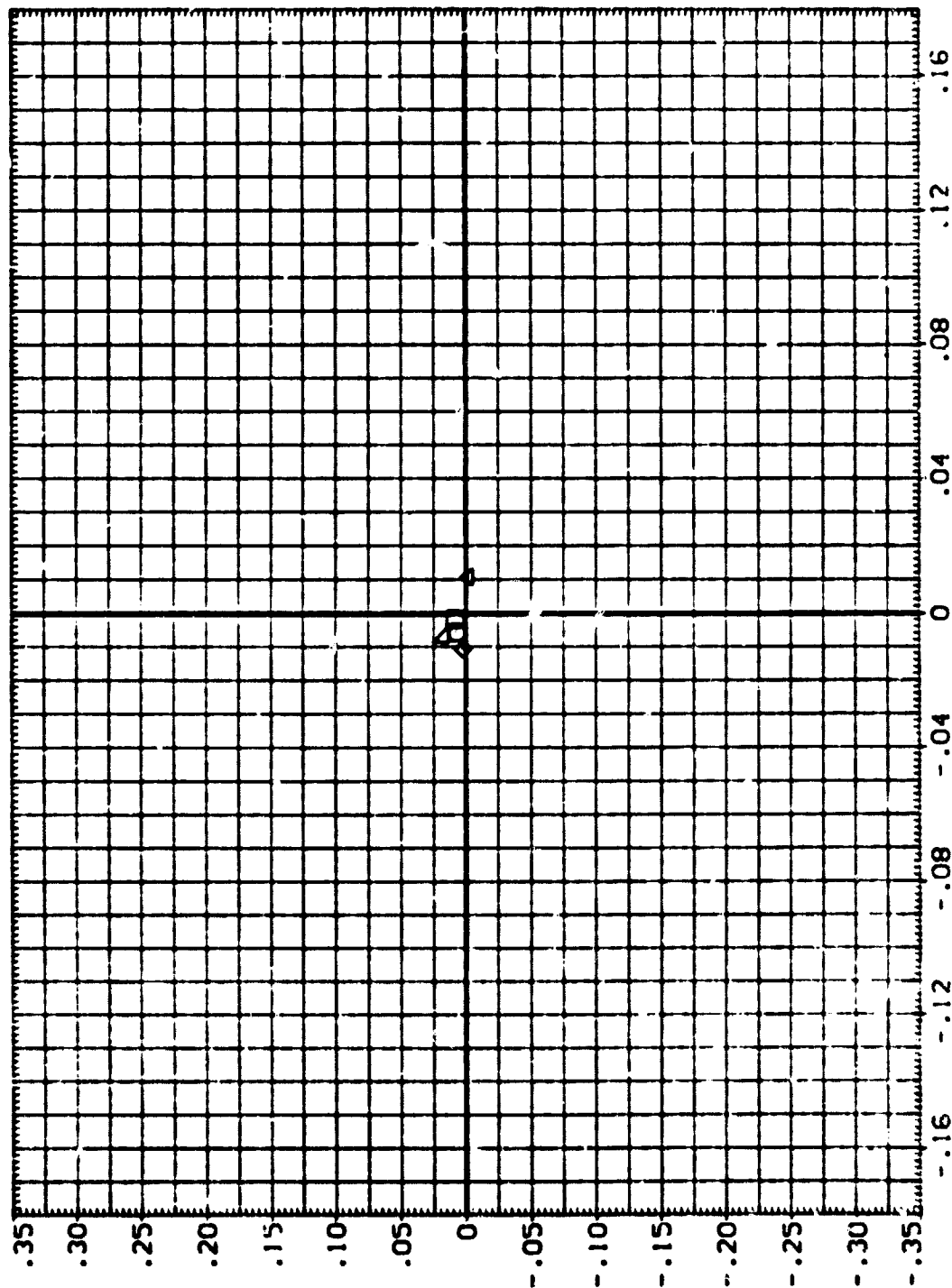


FIG. 26 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=0/0

(D)ALPHA1= 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(LEFT01)	AKES97-0191(AB1) LVAP DRB1 (ER-ALL ML SEALED	.000	.000	2.200	.000	STEF 2690.0000 SQ.FT.
(LEFT41)	AKES97-0191(AB1) LVAP TANK - ALL ML SEALED	.000	.000	2.200	.000	LMREF 1297.0000 IN.
(LEFT41)	AKES97-0191(AB1) LVAP L-SRB - ALL ML SEALED	.000	.000	2.200	.000	BRREF 1297.0000 IN.
(LEFT41)	AKES97-0191(AB1) LVAP R-SRB - ALL ML SEALED	.000	.000	2.200	.000	SRREF 976.0000 IN.
(LEFT41)	AKES97-0191(AB1) LVAP INT VEH ALL ML SEALED	.000	.000	2.200	.000	YREF 400.0000 IN.
						SCALE .0300



SIDE FORCE COEFFICIENT, CY

FC-BODY YAWING MOMENT COEFFICIENT, CYNF

FIG. 26 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS. M=2.2 DEV=0/0

(E) ALPHA = 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-19	ELV-08	MACH	SPDBRK	REFERENCE INFORMATION
(LE1041)	AME597-019(TAB1) LVAP ORBITER-ALL HL SEALED	.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LE1141)	AME597-019(TAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.200	.000	LREF 1297.0000 IN.
(LE1241)	AME597-019(TAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.200	.000	BREF 1297.0000 IN.
(LE1341)	AME597-019(TAB1) LVAP R-LRB - ALL HL SEALED	.000	.000	2.200	.000	XMRP 976.0000 IN.
(LE1441)	AME597-019(TAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.200	.000	YMRP .0000 IN.
(LE1541)		.000	.000	2.200	.000	ZMRP 400.0000 IN.
						SCALE .0300

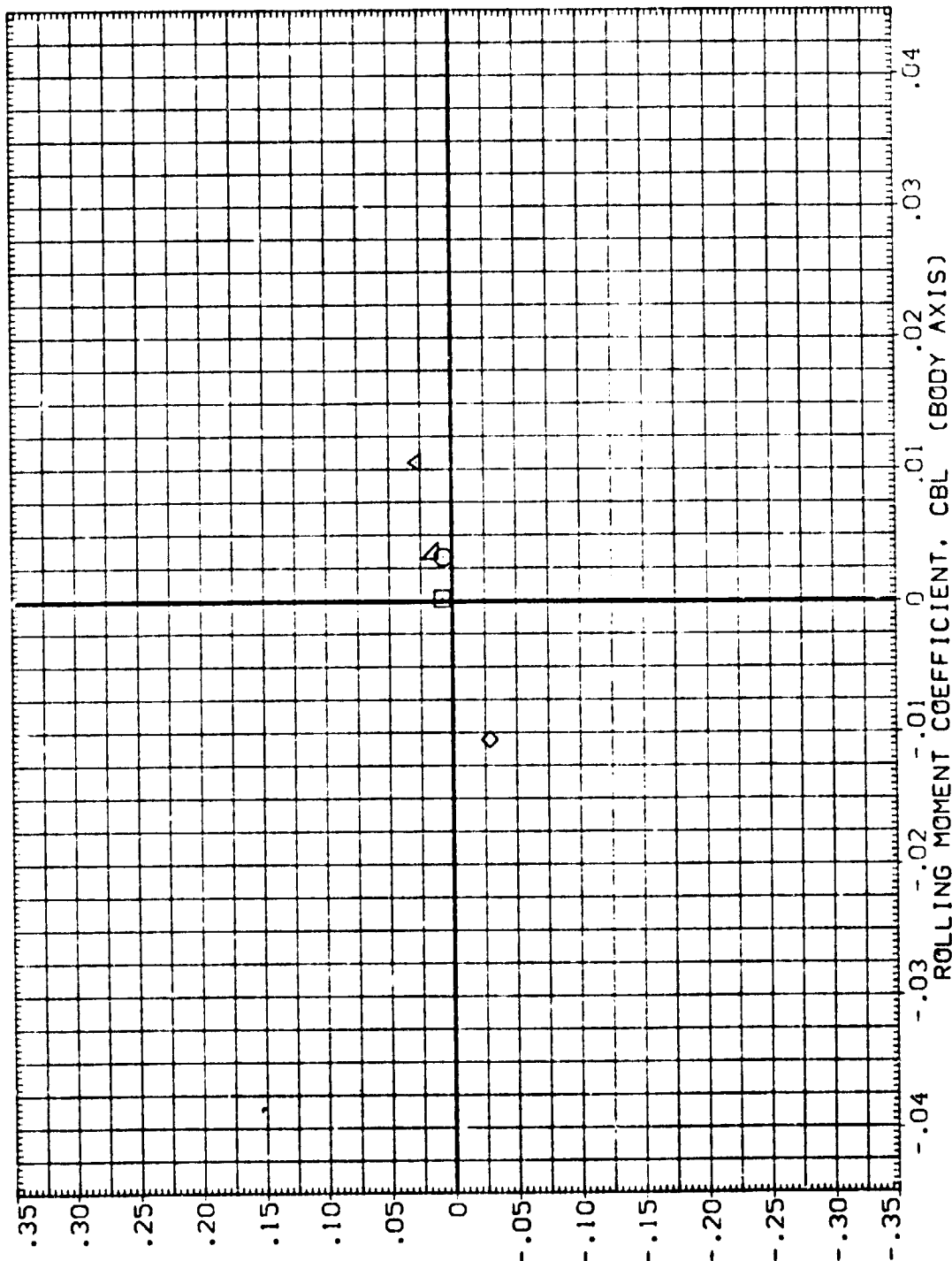


FIG. 26 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=0/0
(A) ALPHA = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPOBRK	REFERENCE INFORMATION
(LET041)	AMES97-019(1A81) LVAP	.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LET141)	AMES97-019(1A81) LVAP	.000	.000	2.200	.000	LREF 1297.0000 IN.
(LET141)	AMES97-019(1A81) LVAP	.000	.000	2.200	.000	BREF 1297.0000 IN.
(LET141)	AMES97-019(1A81) LVAP	.000	.000	2.200	.000	XMRP 976.0000 IN. XI
(LET141)	AMES97-019(1A81) LVAP	.000	.000	2.200	.000	YMRP 400.0000 IN. YI
(LET141)	AMES97-019(1A81) LVAP	.000	.000	2.200	.000	ZMRP 400.0000 IN. ZI
						SCALE .0300

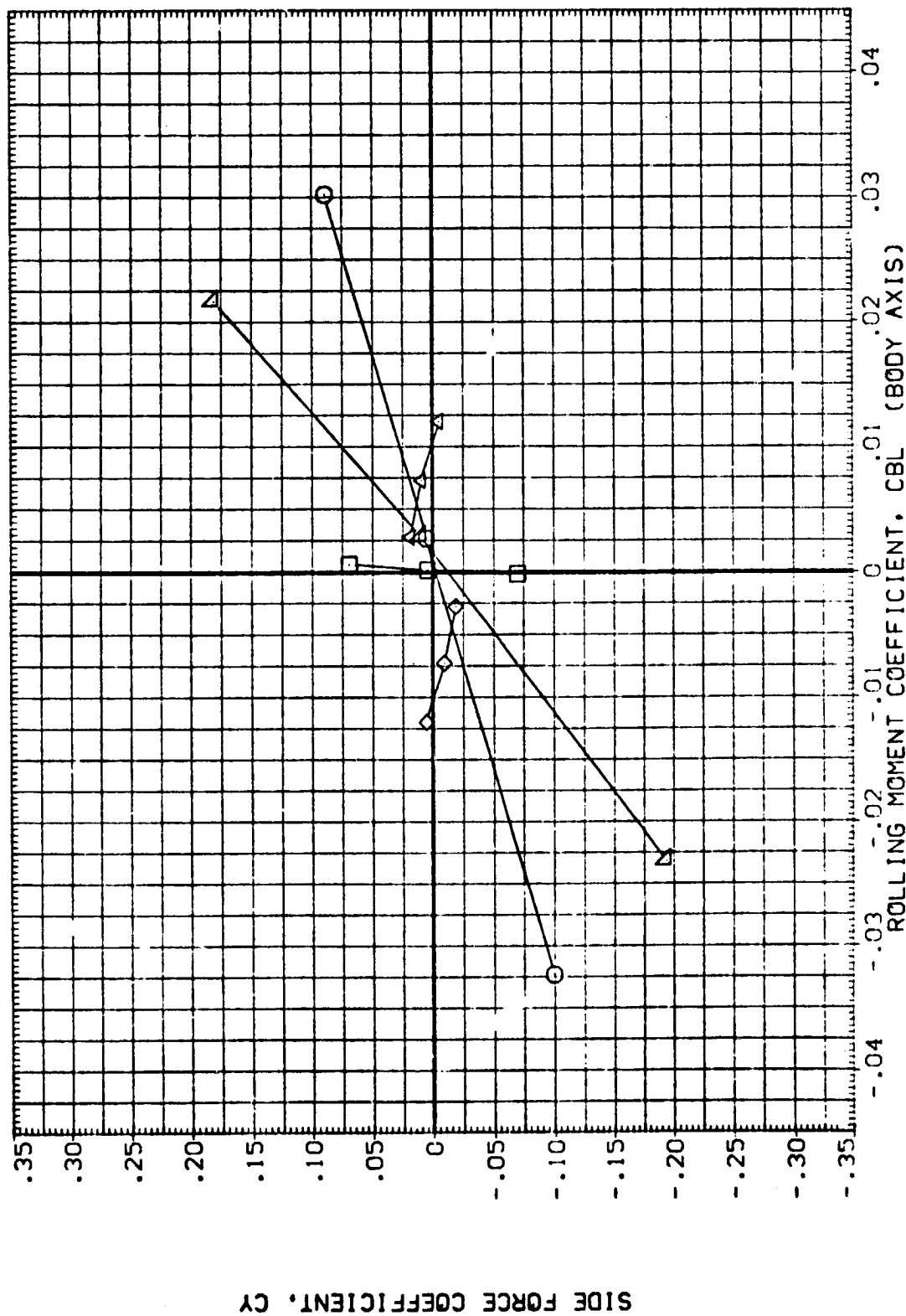


FIG. 26 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=0/0

(B) ALPHA = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDRK	REFERENCE INFORMATION
(LET041)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LET141)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.200	.000	LREF 1297.0000 IN.
(LET141)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.200	.000	GREF 1297.0000 IN.
(LET141)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	.000	.000	2.200	.000	YMRP 976.0000 IN. YI
(LET141)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.200	.000	ZMRP 400.0000 IN. ZI
						SCALE .0300

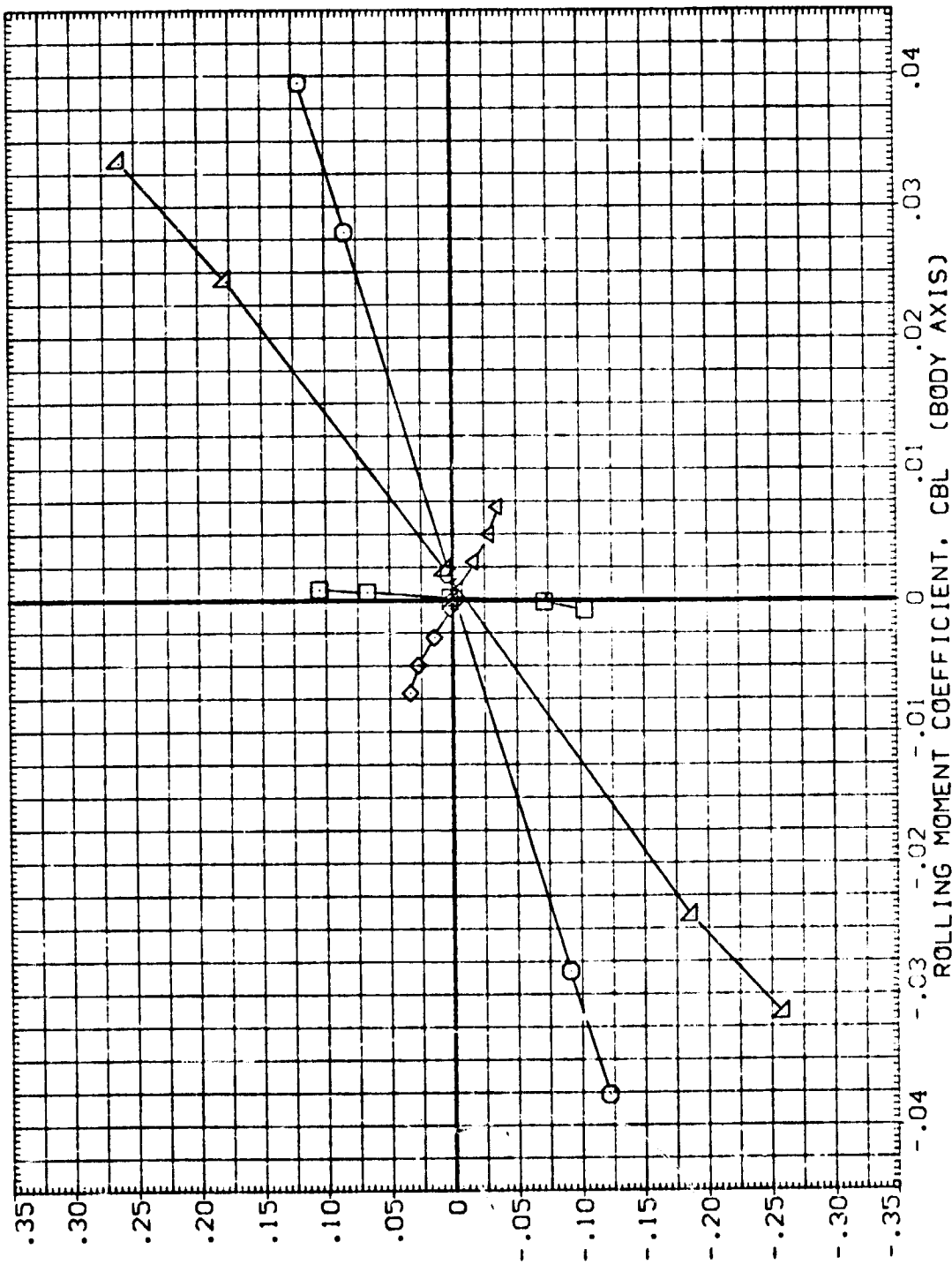


FIG. 26 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=0/0
(C)ALPHA I= .00

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(LE1041)	□	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LE1141)	□	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.200	.000	LREF 1297.0000 IN.
(LE141)	□	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.200	.000	BREF 1297.0000 IN.
(LE141)	□	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	.000	.000	2.200	.000	YMRP 976.0000 IN.
(LE141)	□	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.200	.000	ZMRP 400.0000 IN.
							SCALE .0300

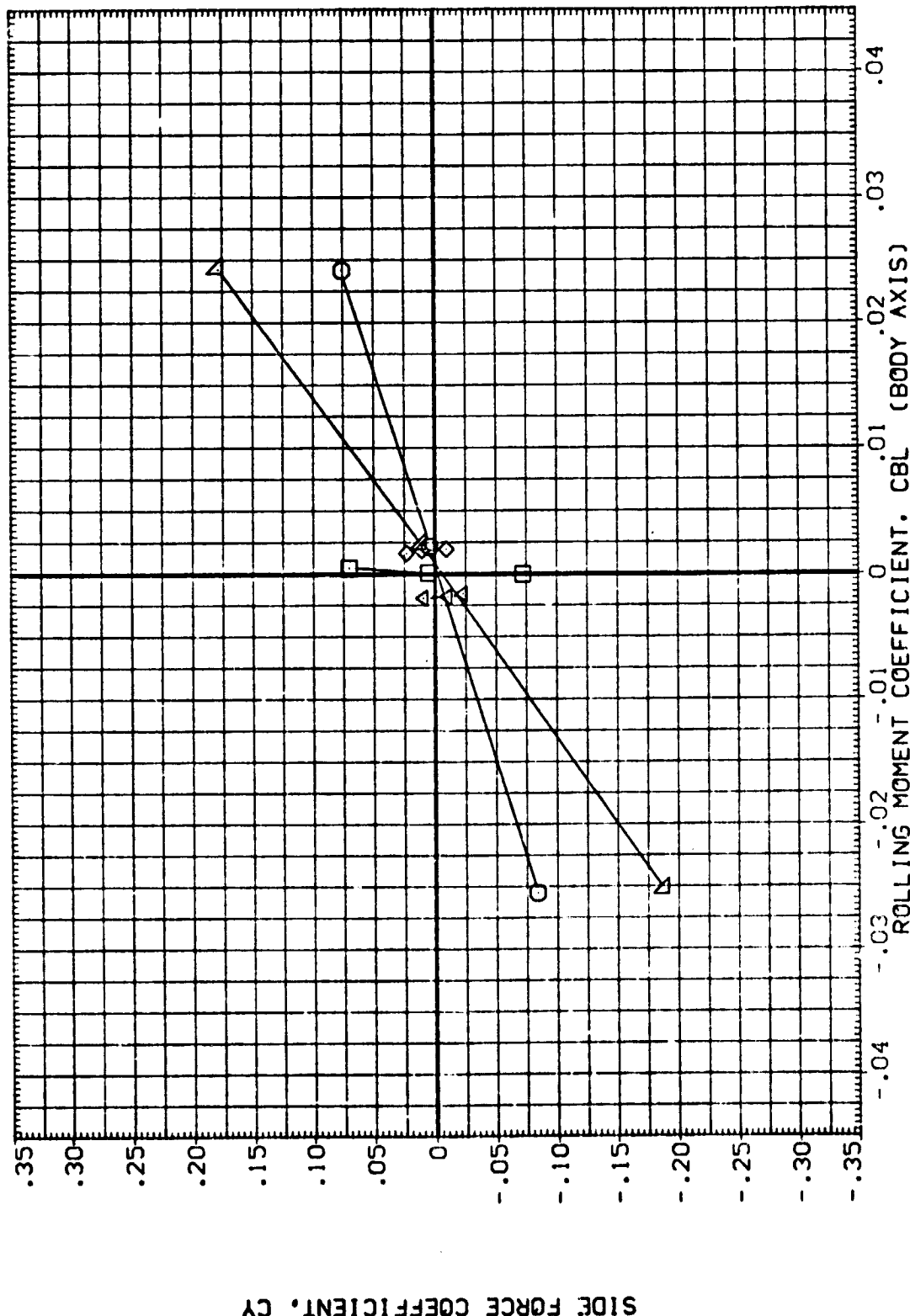


FIG. 26 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=0/0

(D)ALPHA= 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDBRK	REFERENCE INFORMATION
(LETO41)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LETT41)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.200	.000	LREF 1297.0000 IN.
(LETL41)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.200	.000	BREF 1297.0000 IN.
(LEIR41)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	.000	.000	2.200	.000	XMRP 976.0000 IN.
(LETT41)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.200	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

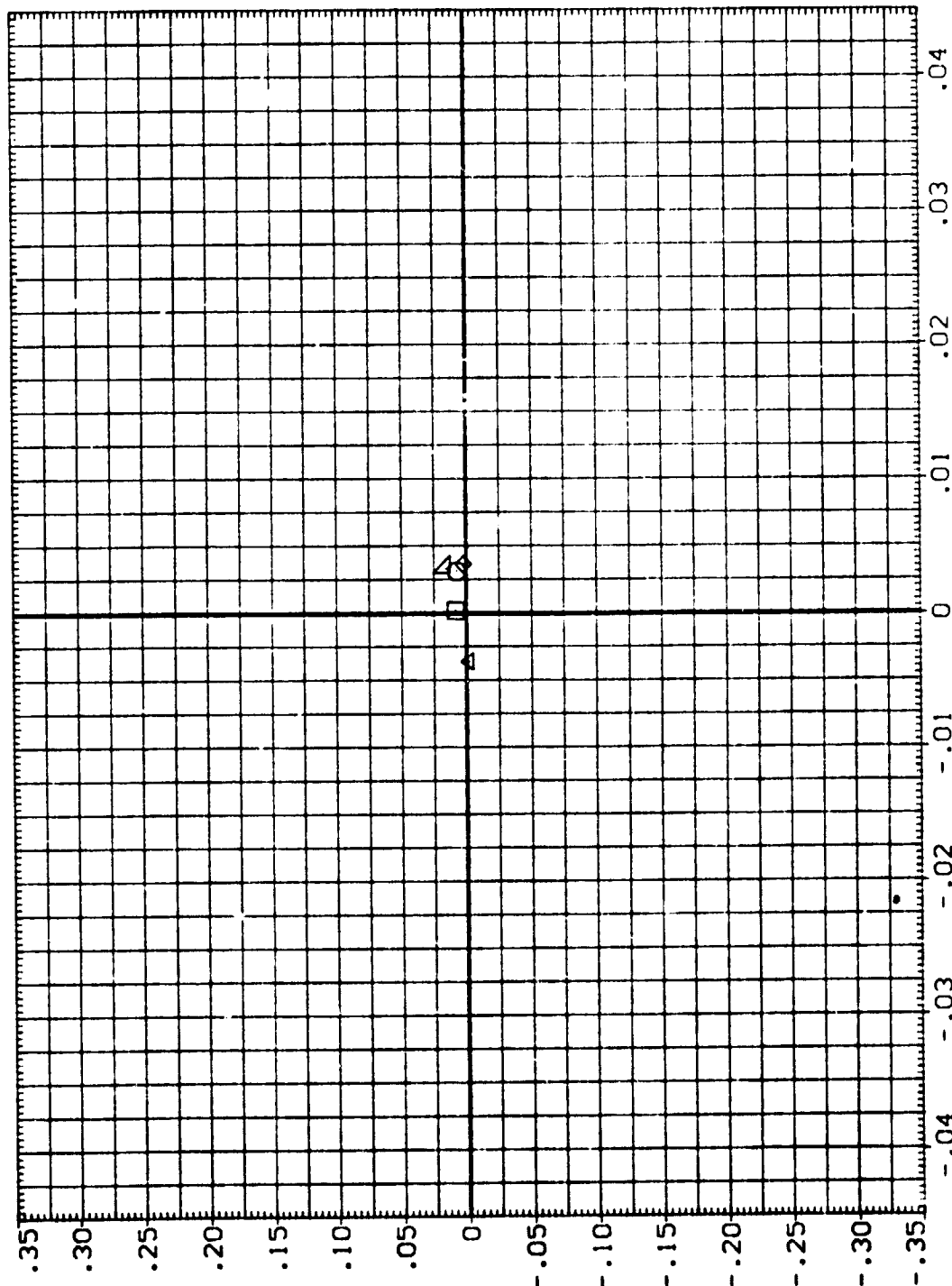


FIG. 26 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=0/0
(E)ALPHA= 6.00

REPRODUCIBILITY OF THE
ORIGINAL

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDBRK	REFERENCE INFORMATION
(LE1045)	AME S97-019(1A81) LVAP CRBITER-ALL HL SEALED	8.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LE1145)	AME S97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(LE145)	AME S97-019(1A81) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.200	.000	BREF 1297.0000 IN.
(LE145)	AME S97-019(1A81) LVAP R-LRB - ALL HL SEALED	8.000	.000	2.200	.000	XMRP 576.0000 IN.
(LE145)	AME S97-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	.000	2.200	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

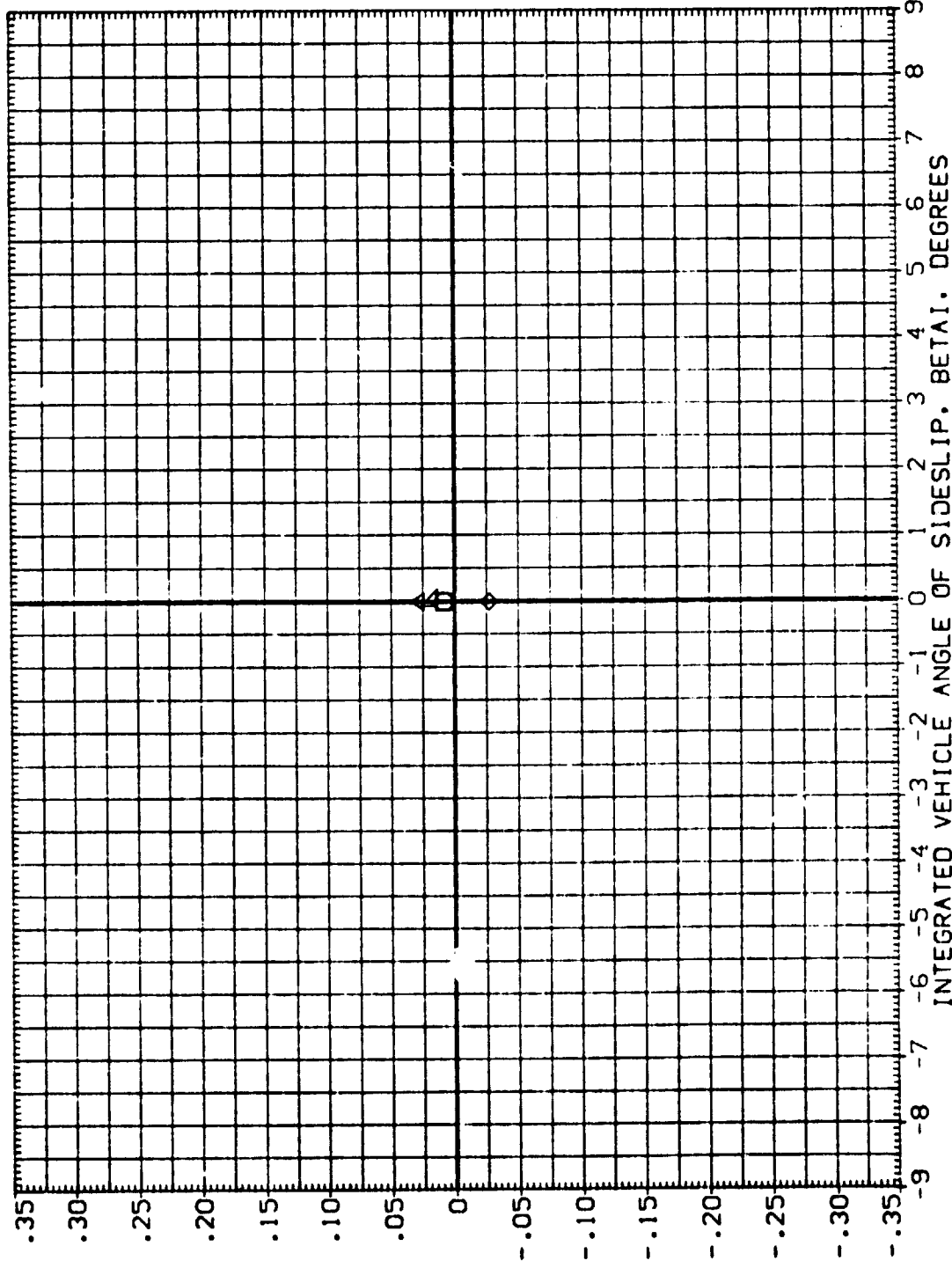


FIG. 27 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0
(A) ALPHA = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LETO45)	AMES97-019C(1A1) LVAP CRBITER-ALL HL SEALED	8.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LETT45)	AMES97-019C(1A1) LVAP TANK - ALL HL SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(LETL45)	AMES97-019C(1A1) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.200	.000	BREF 1297.0000 IN. XI
(LETR45)	AMES97-019C(1A1) LVAP R-LRB - ALL HL SEALED	8.000	.000	2.200	.000	YMRP 976.0000 IN. YI
(LETT45)	AMES97-019C(1A1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.200	.000	ZMRP 400.0000 IN. ZI
						SCALE .0300

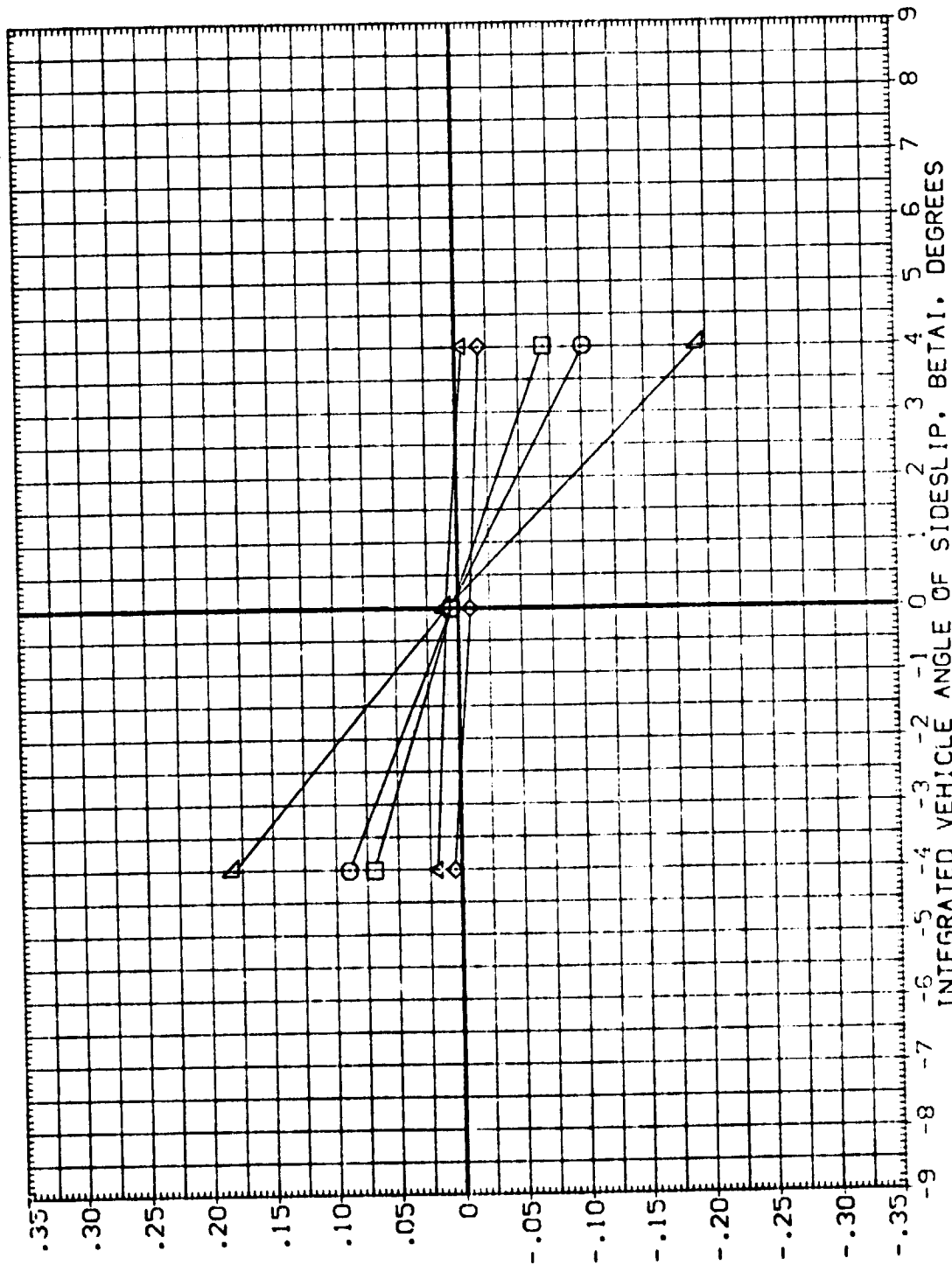


FIG. 27 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0
(B) ALPHA = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPOBRK	REFERENCE INFORMATION
(LE1045)	AME597-019(IAB1) LVAP OPBITER-ALL HL SEALED	8.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LE1145)	AME597-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(LE1245)	AME597-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.200	.000	BREF 1297.0000 IN.
(LE1345)	AME597-019(IAB1) LVAP R-LWB ALL HL SEALED	8.000	.000	2.200	.000	XHRP 976.0000 IN.
(LE1445)	AME597-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.200	.000	YHRP 400.0000 IN.
						ZHRP 400.0000 IN.
						SCALE .0300

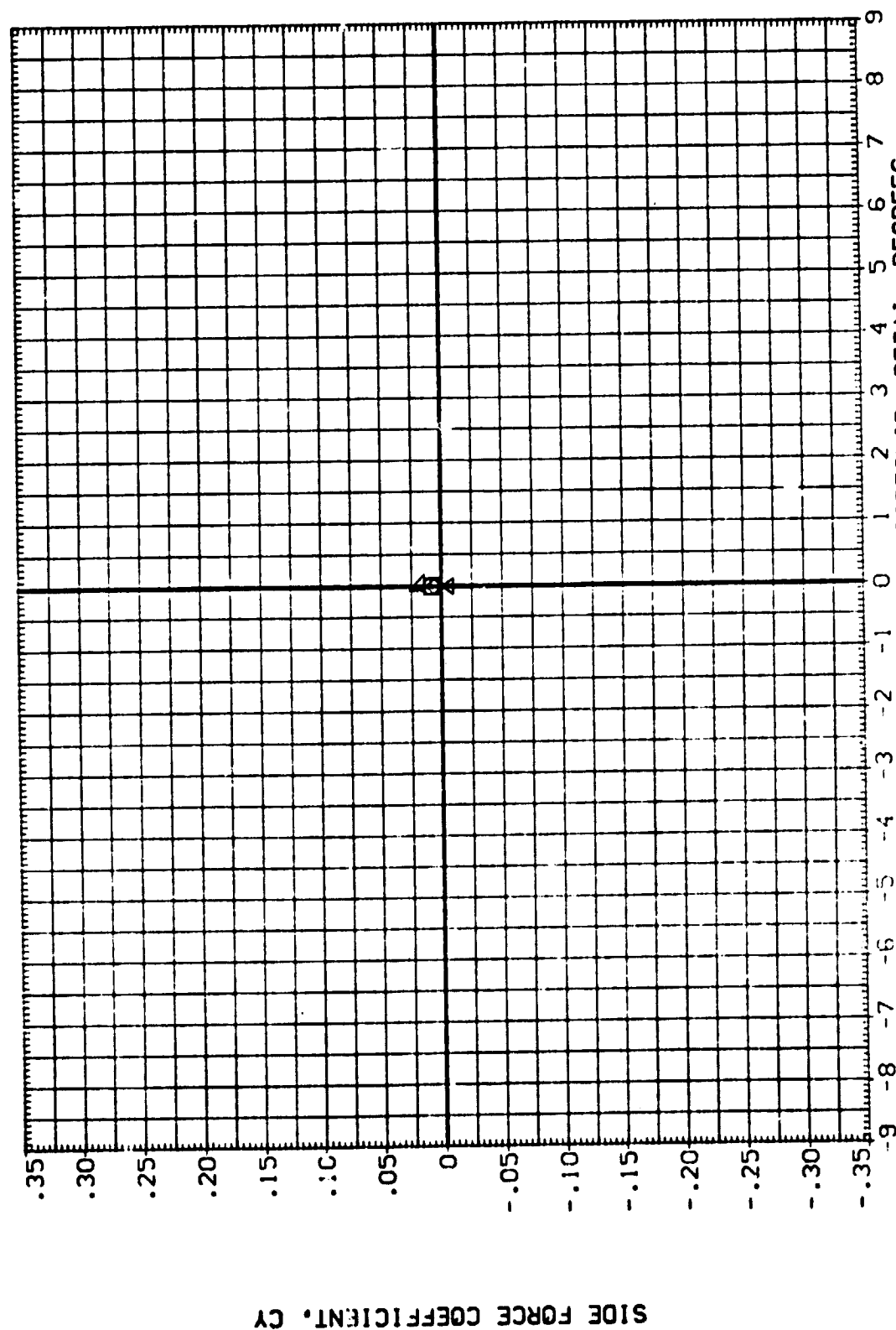


FIG. 27 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDRBK	REFERENCE INFORMATION
(LE1045)	AMES97-019(IAB1) LVAP CRB1TER-ALL HL SEALED	8.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LE1145)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(LE1L45)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.200	.000	BREF 1297.0000 IN.
(LE1L45)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	8.000	.000	2.200	.000	XMRP 976.0000 IN.
(LE1L45)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.200	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

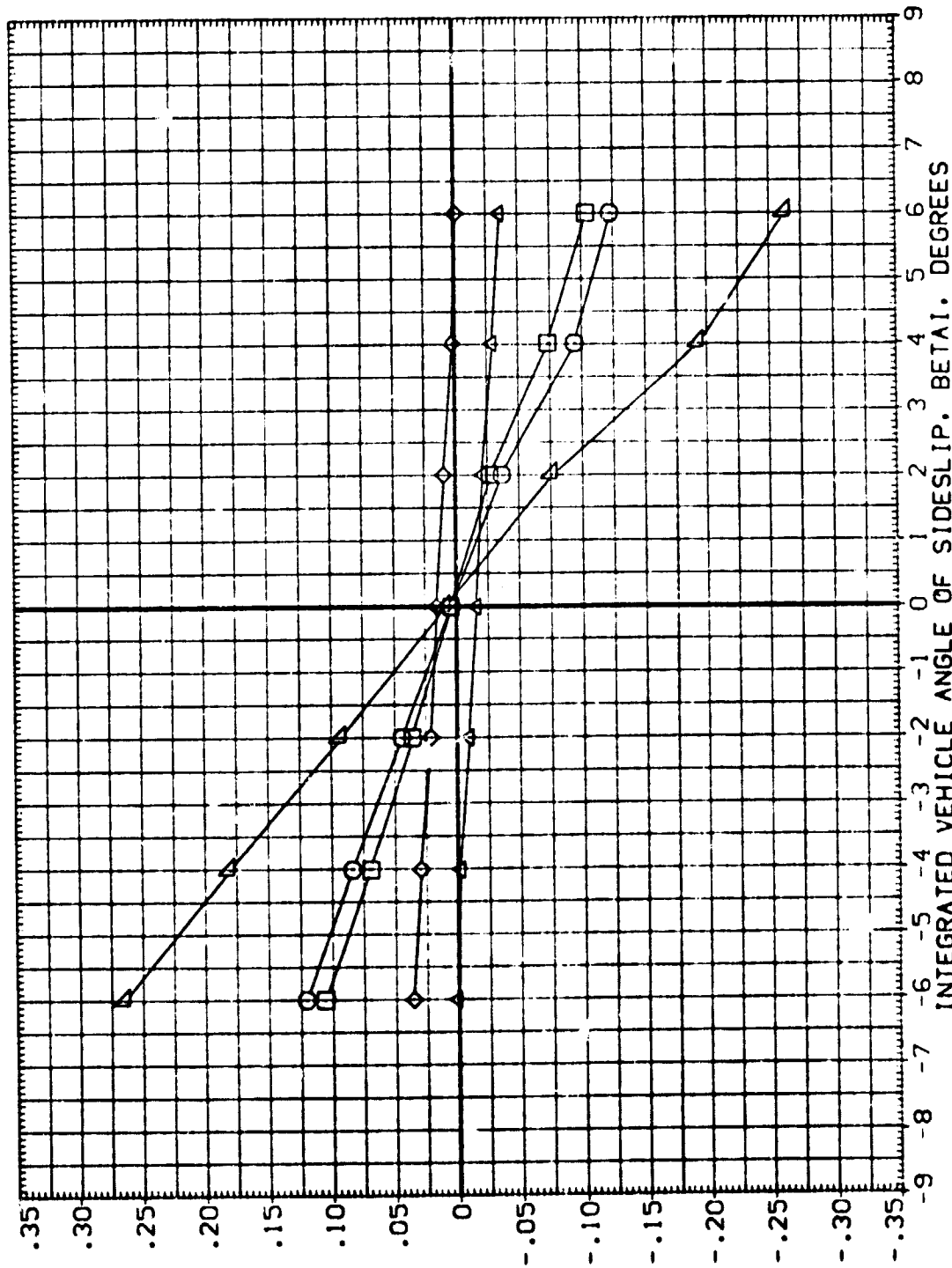


FIG. 27 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0
 (O)ALPHA= .00
 PAGE 656

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LETO45)	APES97-019(IAB1) LVAF ORBITER-ALL ML SEALED	8.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LETT45)	APES97-019(IAB1) LVAF TANK - ALL ML SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(LETL45)	APES97-019(IAB1) LVAF L-SRB - ALL ML SEALED	8.000	.000	2.200	.000	BREF 1297.0000 IN. XT
(LETR45)	APES97-019(IAB1) LVAF R-LRB - ALL ML SEALED	8.000	.000	2.200	.000	XMRP 976.0000 IN. YT
(LETT45)	APES97-019(IAB1) LVAF INT VEH ALL ML SEALED	9.000	.000	2.200	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

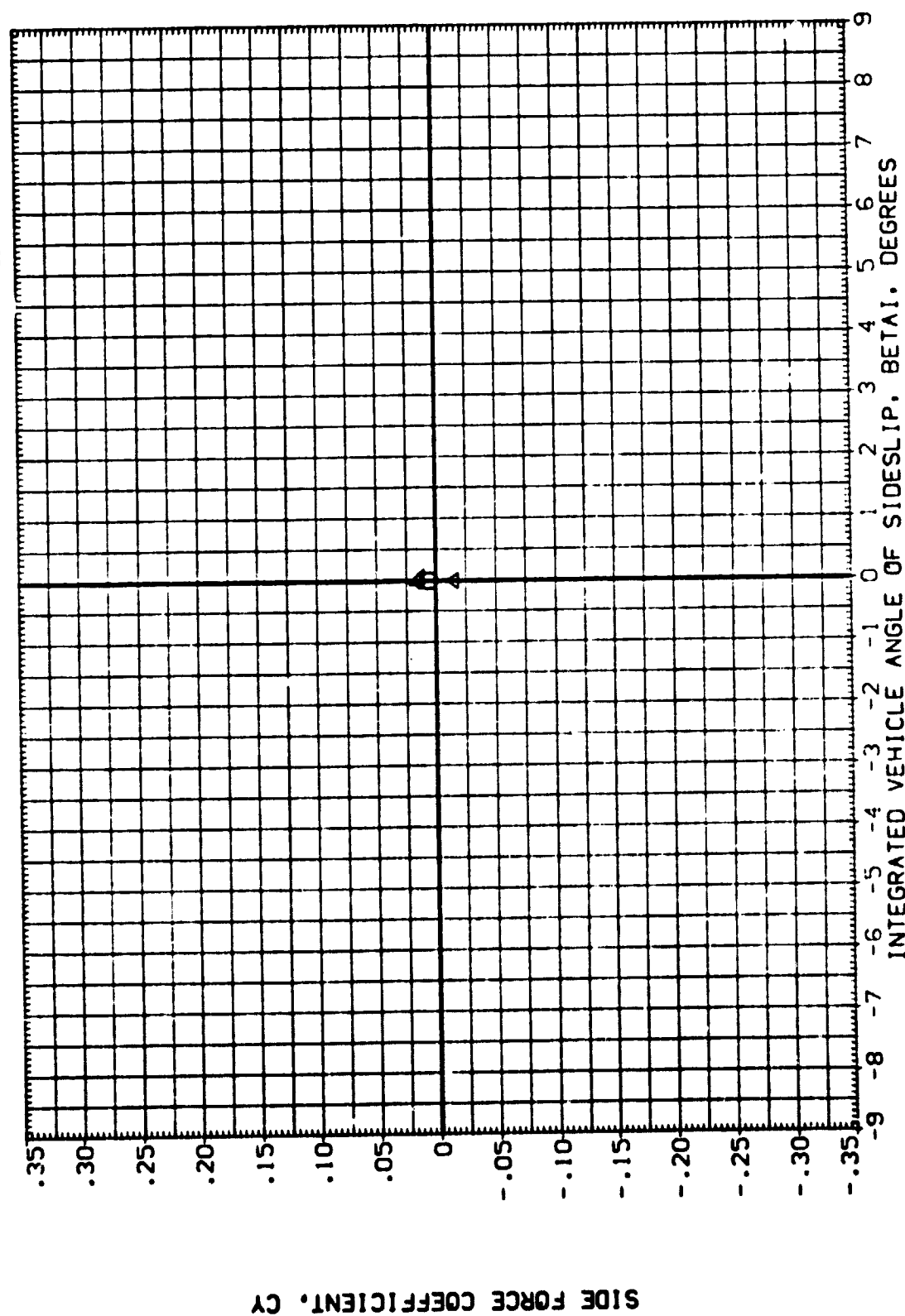


FIG. 27 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(LET045)	AMES97-019(IAB1) LVAP ORBITTER-ALL HL SEALED	8.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LET145)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(LET145)	AMES97-019(IAB1) LVAP L-SPB - ALL HL SEALED	8.000	.000	2.200	.000	BREF 1297.0000 IN.
(LET145)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	8.000	.000	2.200	.000	XMRP 976.0000 IN.
(LET145)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.200	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

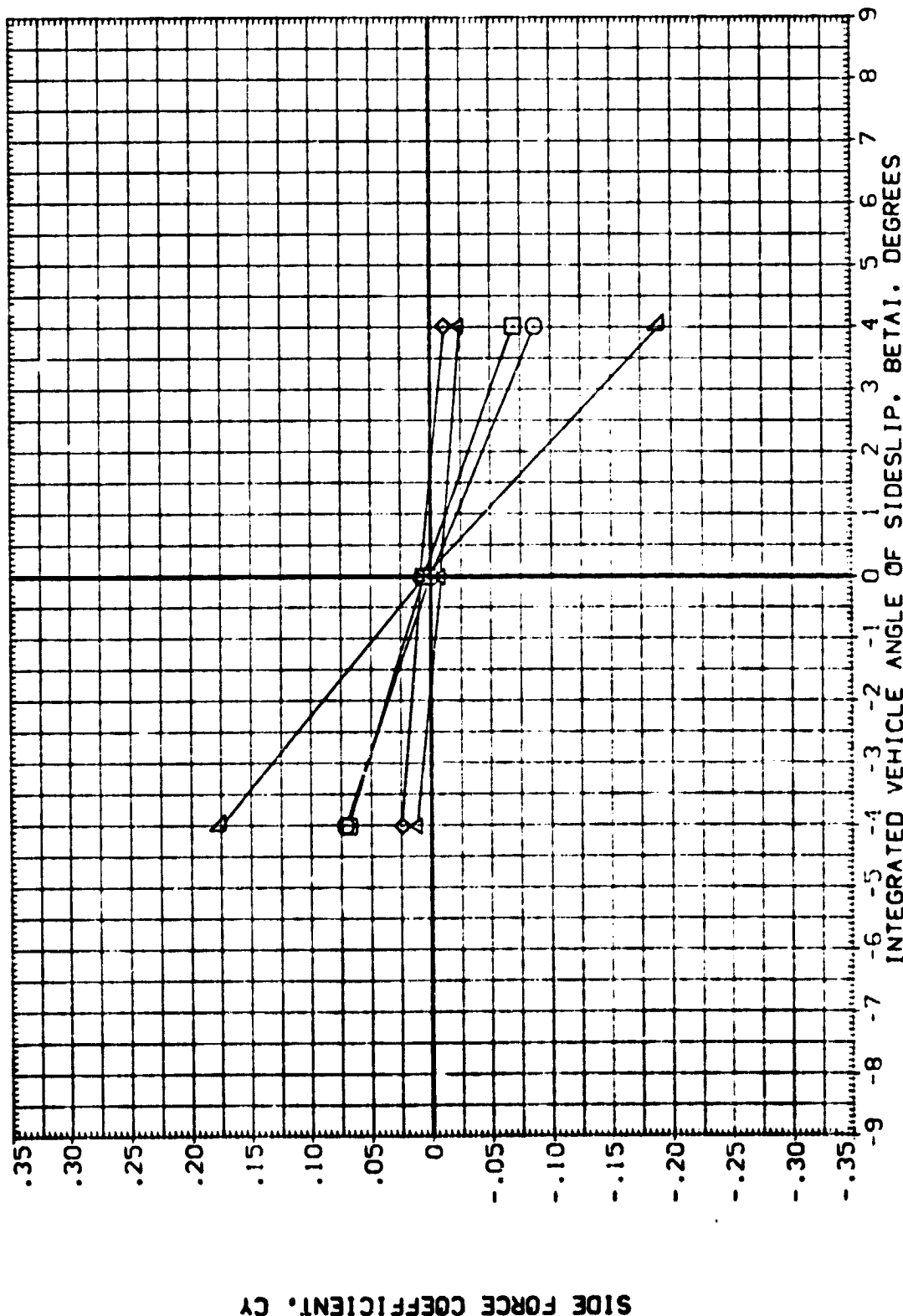


FIG. 27 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0

(F)ALPHA= 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(LETO45)	APES97-019(IAB1) LVAP CRBITER-ALL ML SEALED	8.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LETT45)	APES97-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(LETL45)	APES97-019(IAB1) LVAP L-SAB - ALL ML SEALED	8.000	.000	2.200	.000	BREF 1297.0000 IN.
(LETR45)	APES97-019(IAB1) LVAP R-LRB ALL ML SEALED	8.000	.000	2.200	.000	XHREF 976.0000 IN. XT
(LETT45)	APES97-019(IAB1) LVAP INT VEH ALL ML SEALED	8.000	.000	2.200	.000	YHREF 400.0000 IN. YT
						ZHREF .0300
						SCALE

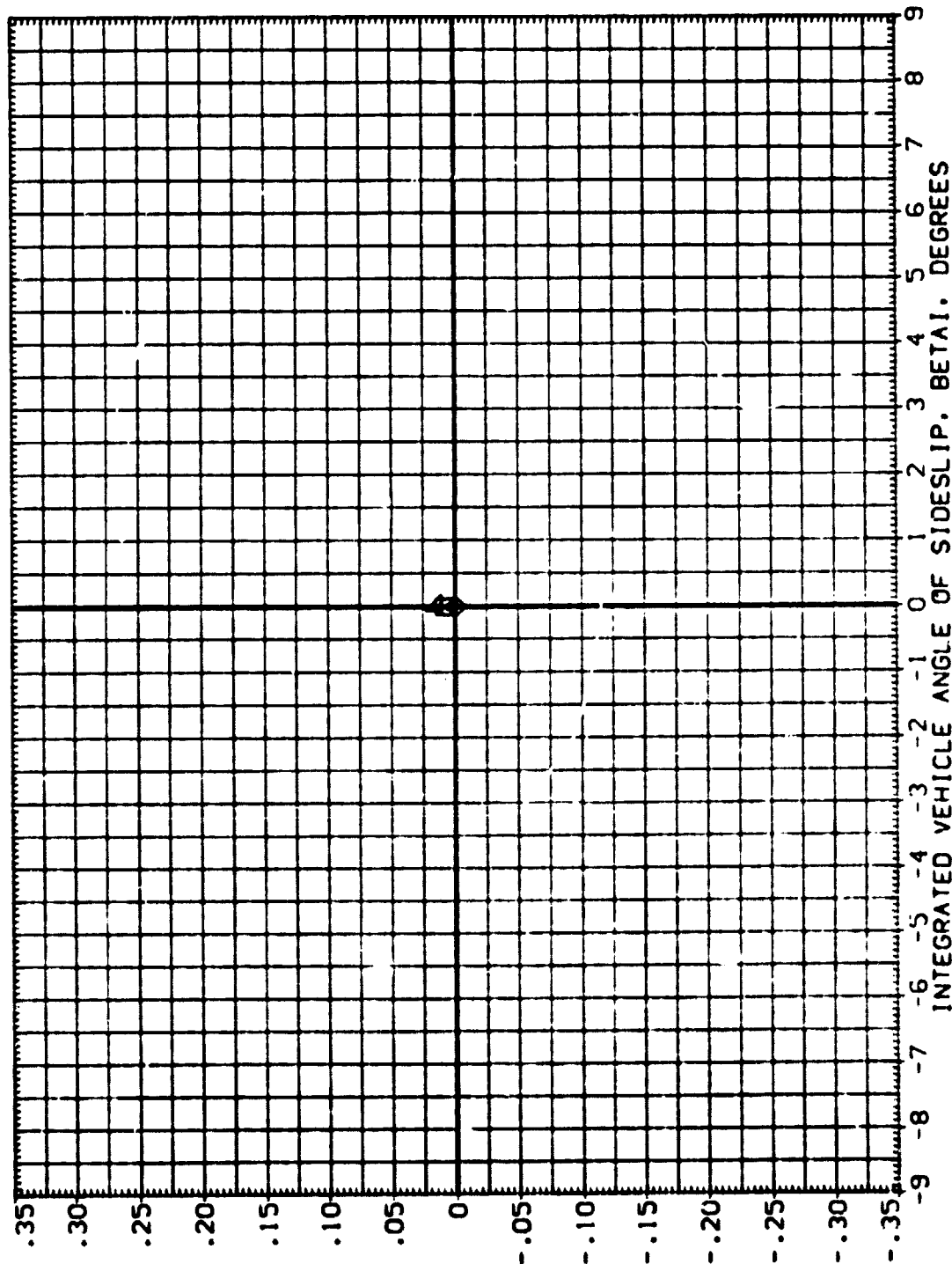


FIG. 27 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(LETO45)	AME597-019(1A81) LVAP CRBITER-ALL ML SEALED	8.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LETL45)	AME597-019(1A81) LVAP YANK - ALL ML SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(LETL45)	AME597-019(1A81) LVAP L-SPB - ALL ML SEALED	8.000	.000	2.200	.000	BREF 1297.0000 IN.
(LETR45)	AME597-019(1A81) LVAP R-SPB - ALL ML SEALED	8.000	.000	2.200	.000	YMRP 576.0000 IN. YI
(LETL45)	AME597-019(1A81) LVAP INT VEM ALL ML SEALED	8.000	.000	2.200	.000	ZMRP 400.0000 IN. ZI
						SCALE .0300

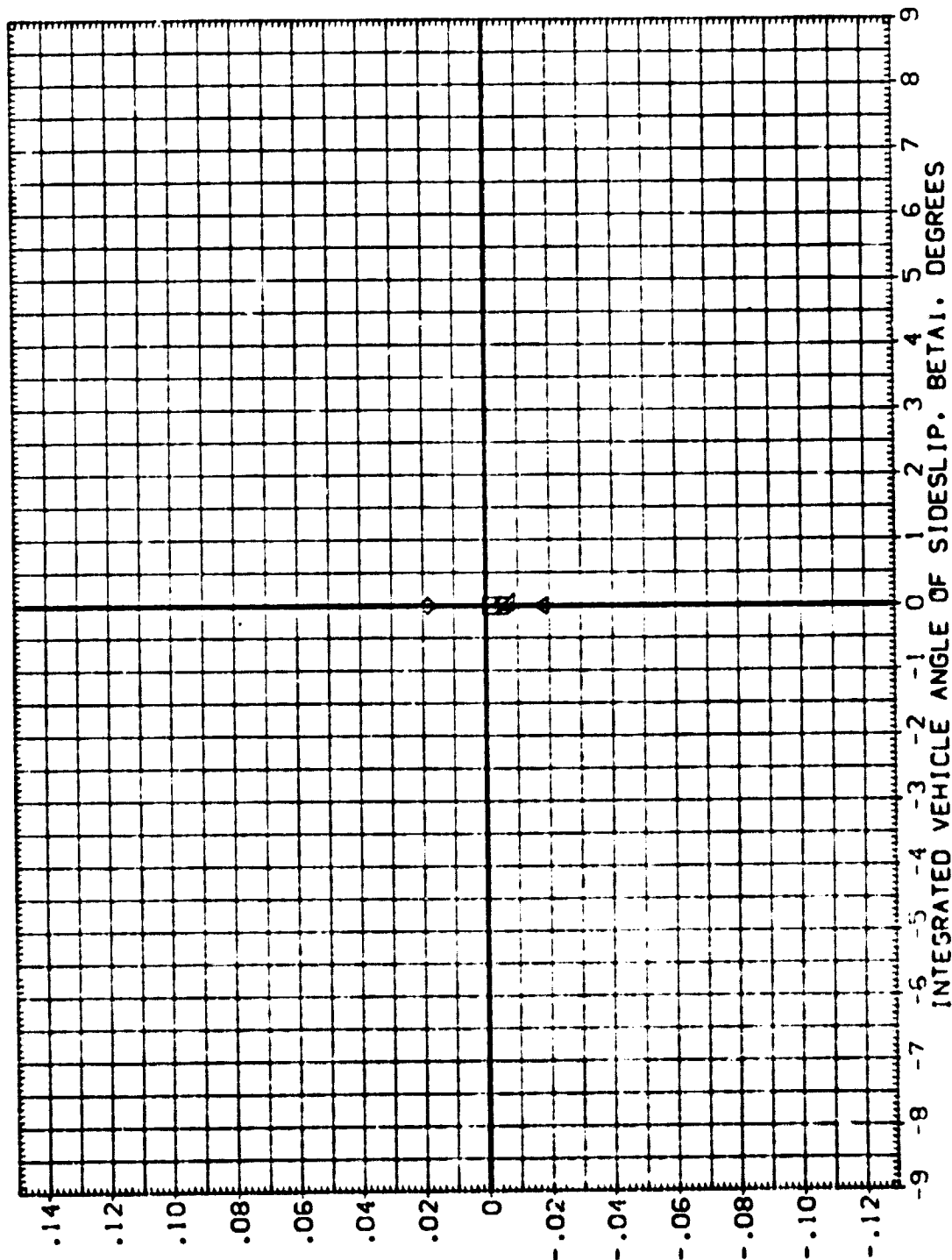


FIG. 27 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0

(A) ALPHA = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-CB	MACH	SPOBRK	REFERENCE INFORMATION
(LE1045)	AME597-019(1AR) LVAP 7AYM - ALL ML SEALED	8.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LE1145)	AME597-019(1AB) LVAP 7AYM - ALL ML SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(LE1145)	AME597-019(1AB) LVAP 7AYM - ALL ML SEALED	8.000	.000	2.200	.000	BREF 1297.0000 IN.
(LE1145)	AME597-019(1AB) LVAP 7AYM - ALL ML SEALED	8.000	.000	2.200	.000	XREF 976.0000 IN. XT
(LE1145)	AME597-019(1AB) LVAP 7AYM - ALL ML SEALED	8.000	.000	2.200	.000	YREF 400.0000 IN. YT
(LE1145)	AME597-019(1AB) LVAP 7AYM - ALL ML SEALED	8.000	.000	2.200	.000	ZREF 400.0000 IN. ZT
						SCALE .0300

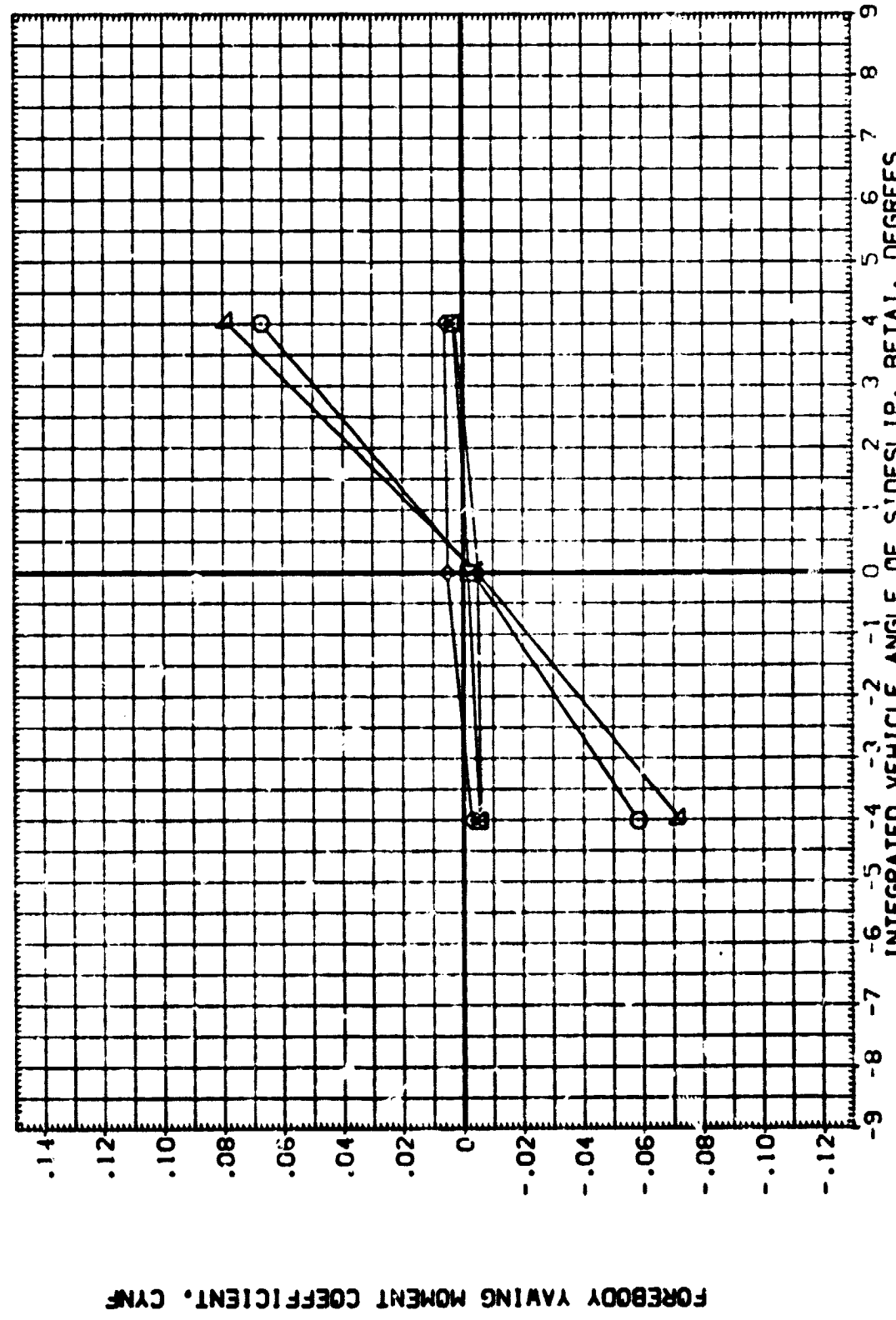


FIG. 27 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0
 (B) ALPHA = -4.00 PAGE 66

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-2B	MACH	SPDRK	REFERENCE INFORMATION
(LE1045)	AMES97-019(1A1) LVAP CRBITER-ALL HL SEALED	8.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LE1145)	AMES97-019(1A1) LVAP TANK - ALL HL SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(LE1L45)	AMES97-019(1A1) LVAP L-GRB - ALL HL SEALED	8.000	.000	2.200	.000	BREF 1297.0000 IN.
(LE1R45)	AMES97-019(1A1) LVAP R-GRB - ALL HL SEALED	8.000	.000	2.200	.000	XMRP 976.0000 IN.
(LE1T45)	AMES97-019(1A1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.200	.000	ZMRP 400.0000 IN.
						SCALE .0300

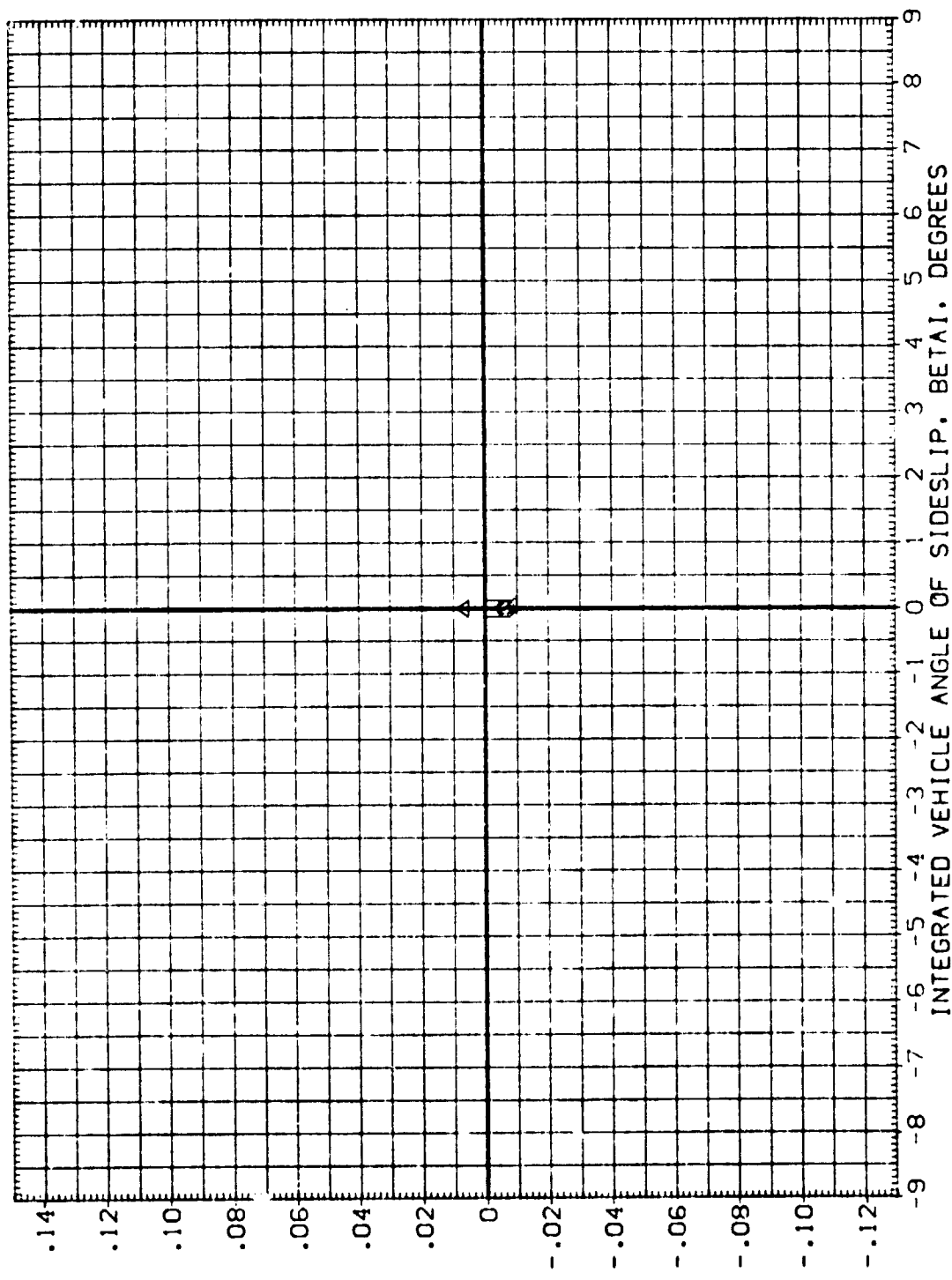


FIG. 27 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0
 (C)ALPHA= -2.00 PAGE 662

REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LET145)	AMES97-0191(A81) LVAP ORBITER-ALL HL SEALED	8.000	.000	2.200	.000	SREF 2690.0000
(LET145)	AMES97-0191(A81) LVAP TANK - ALL HL SEALED	8.000	.000	2.200	.000	LREF 1297.0000
(LET145)	AMES97-0191(A81) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.200	.000	BREF 1297.0000
(LET145)	AMES97-0191(A81) LVAP R-LRB - ALL HL SEALED	8.000	.000	2.200	.000	XMRP 976.0000
(LET145)	AMES97-0191(A81) LVAP INT VEH ALL HL SEALED	8.000	.000	2.200	.000	YMRP .0000
						ZMRP 400.0000
						SCALE .0300

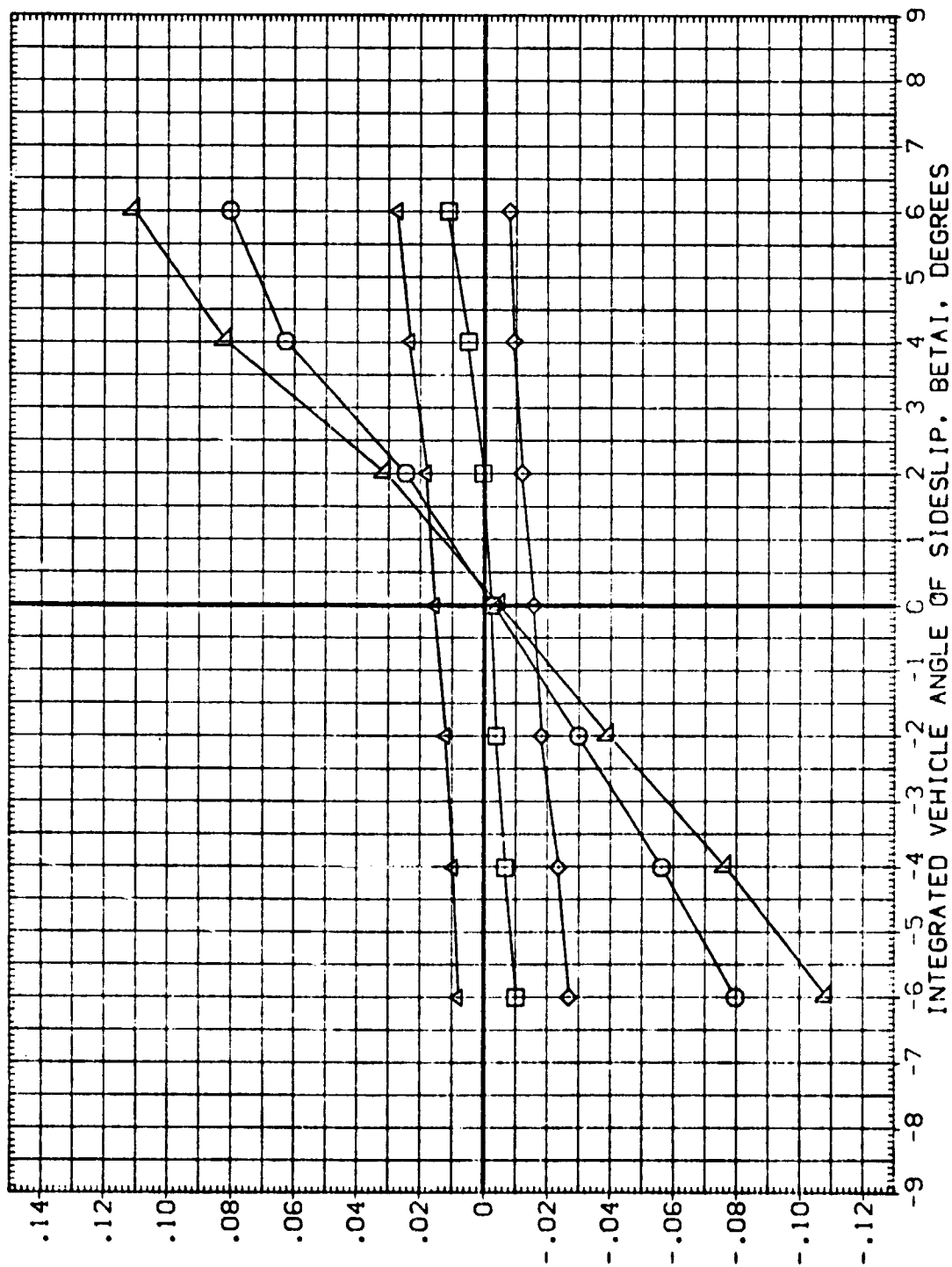


FIG. 27 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-B	ELV-OB	MACH	SPOBRK	REFERENCE INFORMATION
(LETO45)	AMES97-019C(A81) LVAP ORBITER-ALL HL SEALED	8.000	.000	2.200	.000	SREF 2690.0000 SC.FT.
(LETT45)	AMES97-019C(A81) LVAP TANK - ALL HL SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(LETT45)	AMES97-019C(A81) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.200	.000	BREF 1297.0000 IN.
(LETT45)	AMES97-019C(A81) LVAP R-SRB - ALL HL SEALED	8.000	.000	2.200	.000	ANRP 976.0000 IN. XT
(LETT45)	AMES97-019C(A81) LVAP INT VEH ALL HL SEALED	8.000	.000	2.200	.000	YMRP 400.0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

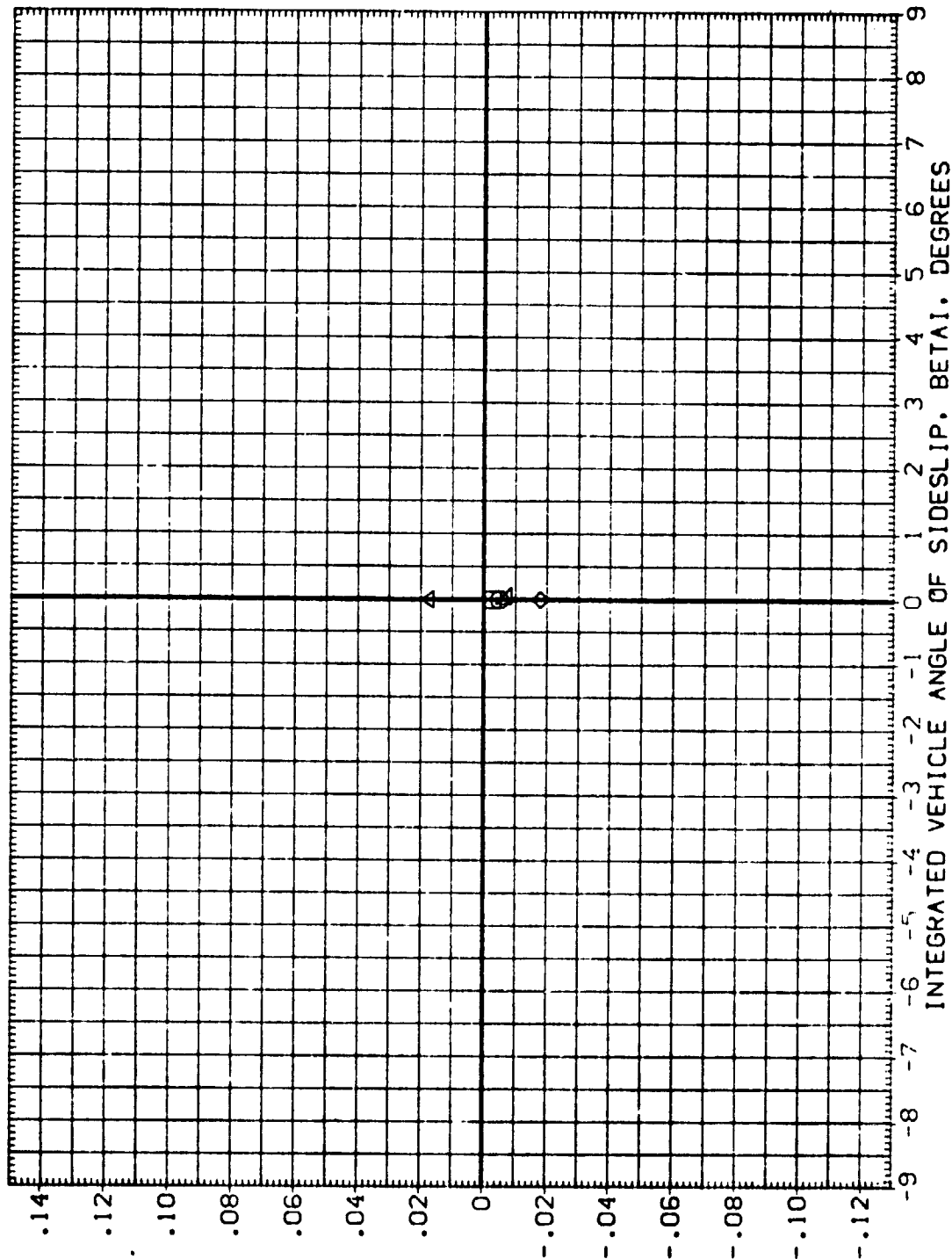


FIG. 27 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0

FOREBODY YAWING MOMENT COEFFICIENT, CYNF

DATA SET SYMBOL	CONFIGURATION: DESCRIPTION	ELV-1B	ELV-OB	MACH	SPDBRK	REFERENCE INFORMATION
(LE1045)	AMES97-019(JAB1) LVAP ORBITER-ALL HL SEALED	8.000	.000	2.200	.000	SREF 2690.0000 JG.FT.
(LE1145)	AMES97-019(JAB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(LE1245)	AMES97-019(JAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.200	.000	BREF 1297.0000 IN.
(LE1345)	AMES97-019(JAB1) LVAP R-LRB ALL HL SEALED	8.000	.000	2.200	.000	YMRP 976.0000 IN.
(LE1445)	AMES97-019(JAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.200	.000	ZMRP 400.0000 IN.
(LE1145)						SCALE .0300

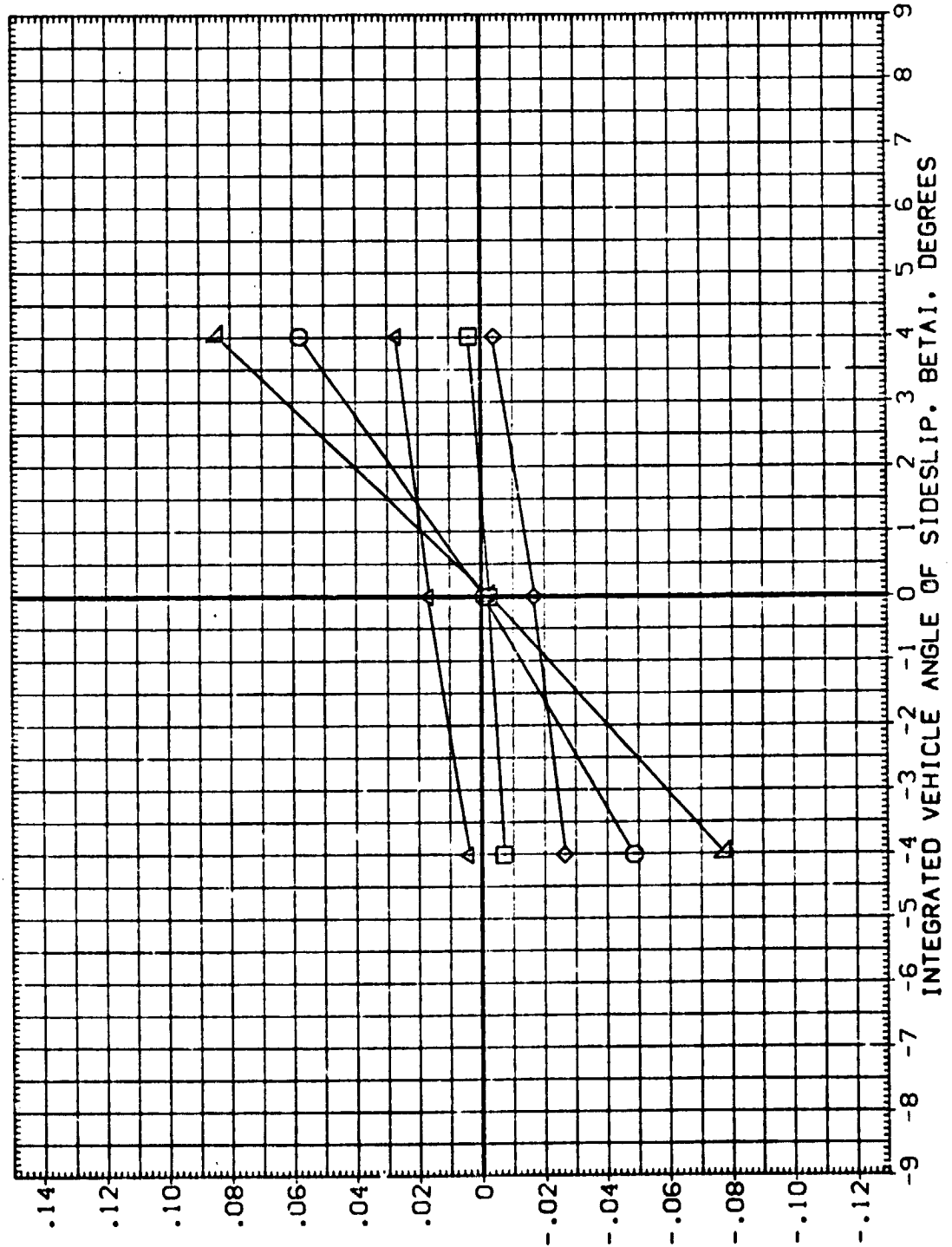



FIG. 27 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0

DATA SET SYMBOL:  AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED
 (LE1045) AMES97-019(IAB1) LVAP TANK - ALL HL SEALED
 (LE1145) AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED
 (LE1245) AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED
 (LE1345) AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED
 (LE1445)

CONFIGURATION DESCRIPTION

ELV-18 ELV-08 MACH SPDBRK REFERENCE INFORMATION

ELV-18	ELV-08	MACH	SPDBRK	SREF	2690.0000	SQ.FT.
8.000	.000	2.200	.000	LREF	1297.0000	IN.
8.000	.000	2.200	.000	BREF	1297.0000	IN.
8.000	.000	2.200	.000	XMRP	976.0000	IN. XT
8.000	.000	2.200	.000	YMRP	400.0000	IN. YT
8.000	.000	2.200	.000	ZMRP	400.0000	IN. ZT
				SCALE	.0300	

FOREBODY YAWING MOMENT COEFFICIENT, CYNF

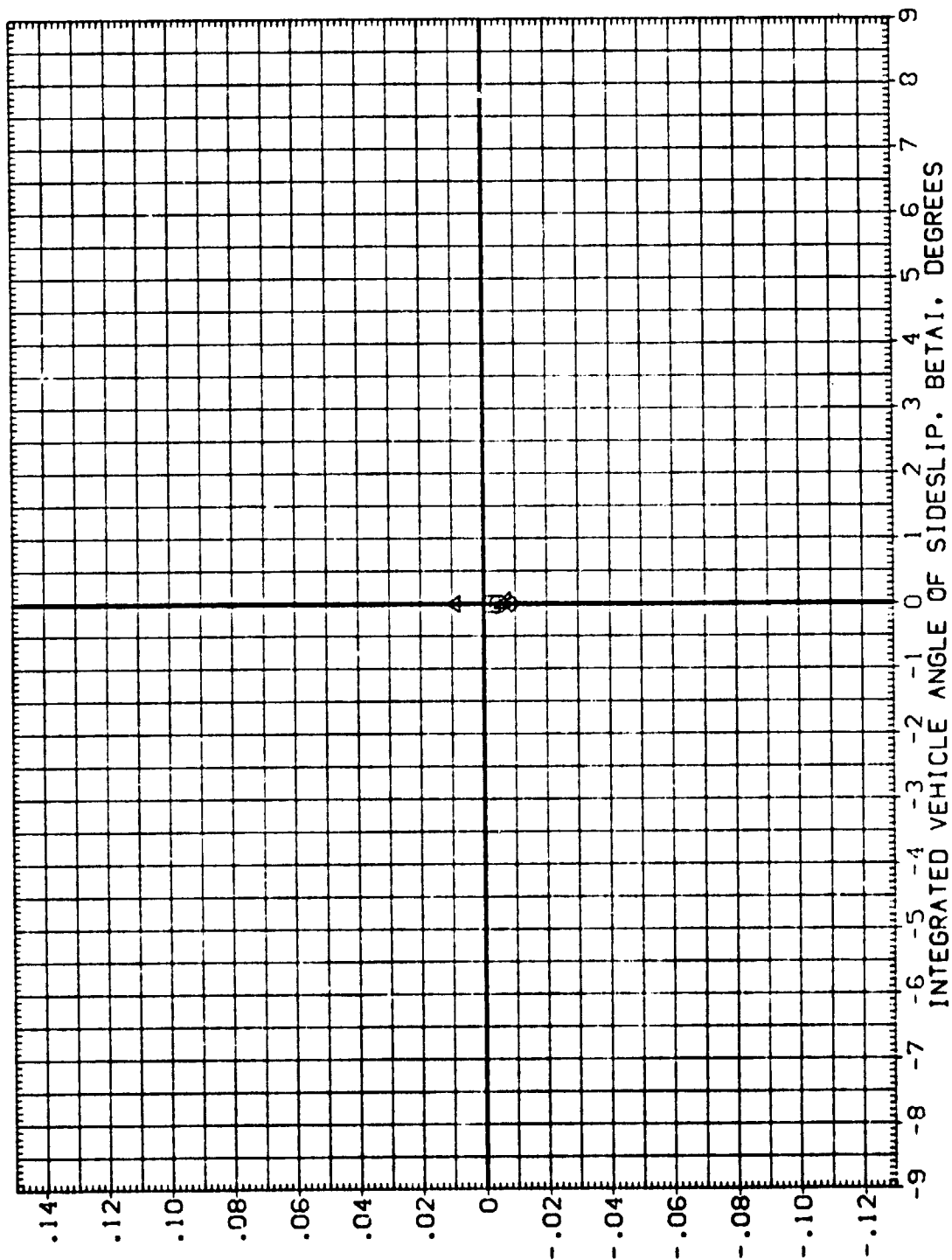


FIG. 27 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0
 (G)ALPHA= 6.00 PAGE 666

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LE1045)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	.000	2.200	.000	SREF 2690.0000 SO.FT.
(LE1145)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(LE1245)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.200	.000	BREF 1297.0000 IN.
(LE1345)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	8.000	.000	2.200	.000	XMRP 976.0000 IN.
(LE1445)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.200	.000	YMRP .0000 IN.
(LE1545)						ZMRP 400.0000 IN.
						SCALE .0300

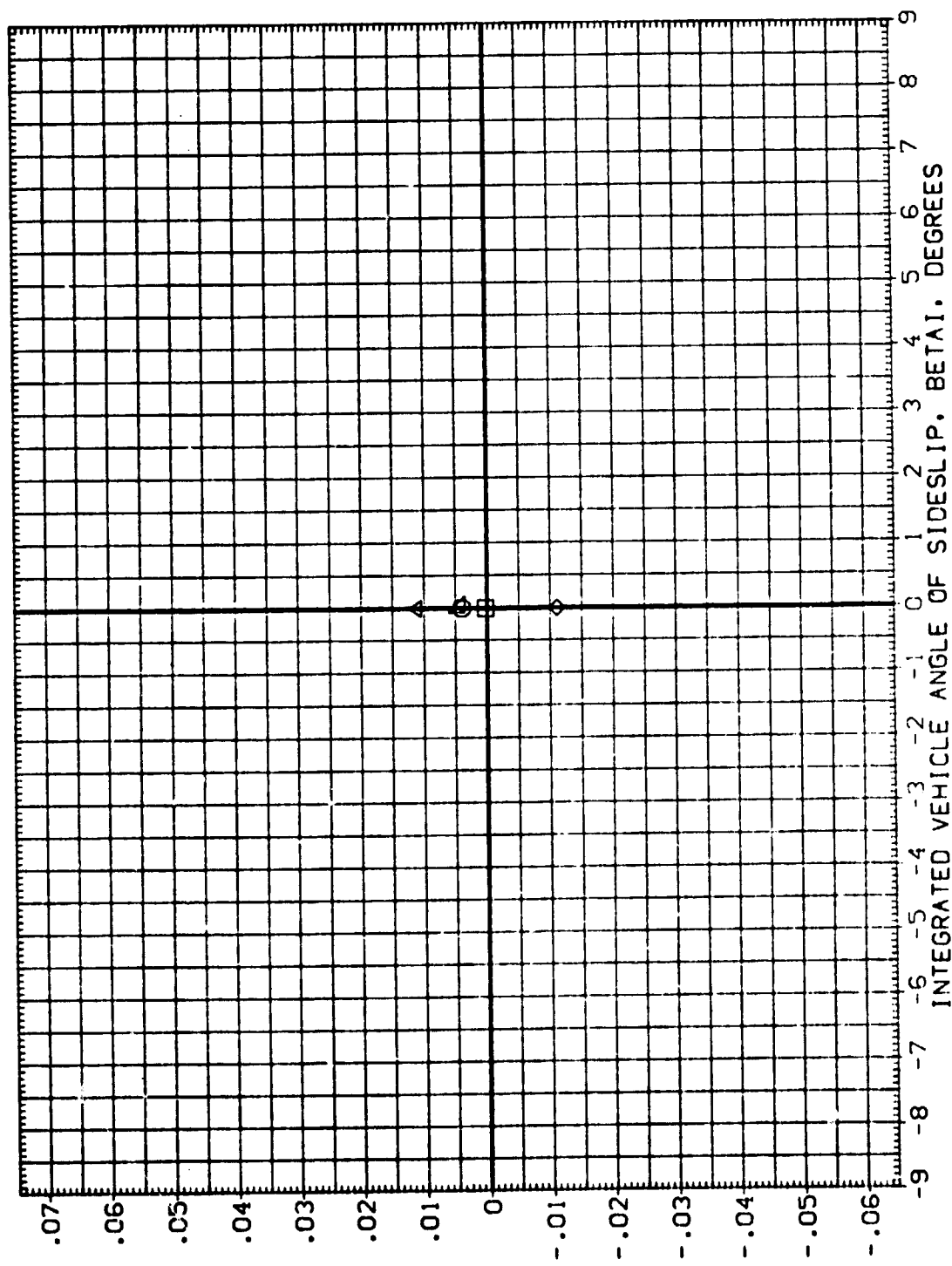


FIG. 27 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0
 (A) ALPHA = -6.00 PAGE 667

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(LE1045)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LE1145)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(LE1245)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.200	.000	BREF 1297.0000 IN.
(LE1345)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	.000	2.200	.000	XMRP 976.0000 IN.
(LE1445)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.200	.000	YMRP .0000 IN.
(LE1545)						ZMRP 400.0000 IN.
						SCALE .0300

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

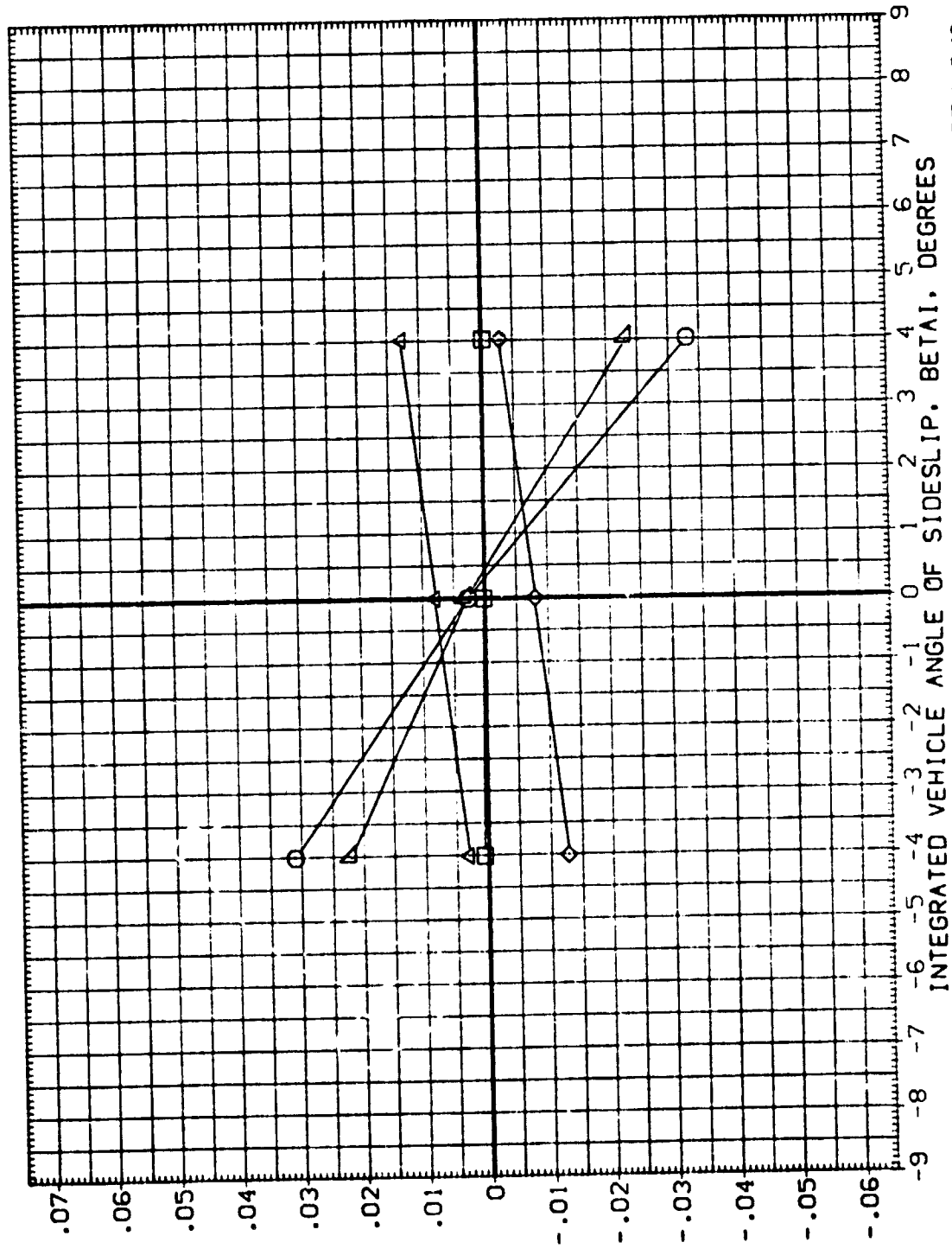


FIG. 27 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0
 (B) ALPHA = -4.00
 PAGE 668

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDBRK	REFERENCE INFORMATION
(LE1045)	AMES97-019(1A81) LVAP ORBITER-ALL HL SEALED	8.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LE1145)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(LE1445)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.200	.000	BREF 1297.0000 IN.
(LE1445)	AMES97-019(1A81) LVAP R-LRB ALL HL SEALED	8.000	.000	2.200	.000	YHRP 976.0000 IN.
(LE1145)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	.000	2.200	.000	ZHRP 400.0000 IN.
						SCALE .0300

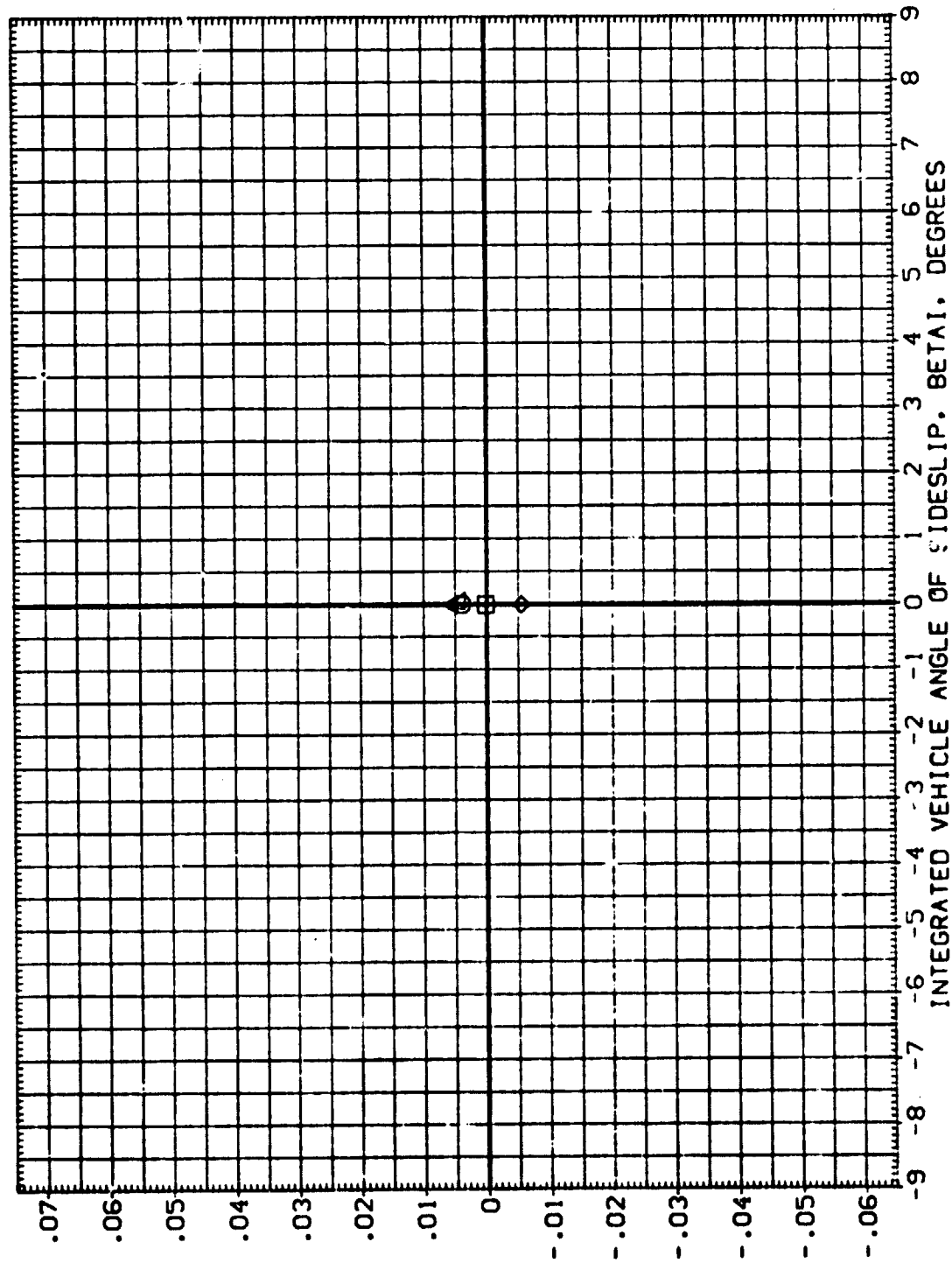


FIG. 27 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0
(C)ALPIA1= -2.00 PAGE 669

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDBRK	REFERENCE INFORMATION
(LE1045)	AMES97-019C(AB1) LVAP ORBITER-ALL HL SEALED	8.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LE1145)	AMES97-019C(AB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(LE1L45)	AMES97-019C(AB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.200	.000	BREF 1297.0000 IN.
(LE1R45)	AMES97-019C(AB1) LVAP R-LRB ALL HL SEALED	8.000	.000	2.200	.000	XMRP 976.0000 IN.
(LE1T45)	AMES97-019C(AB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.200	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

ROLLING MOMENT COEFFICIENT, CRL (BODY AXIS)

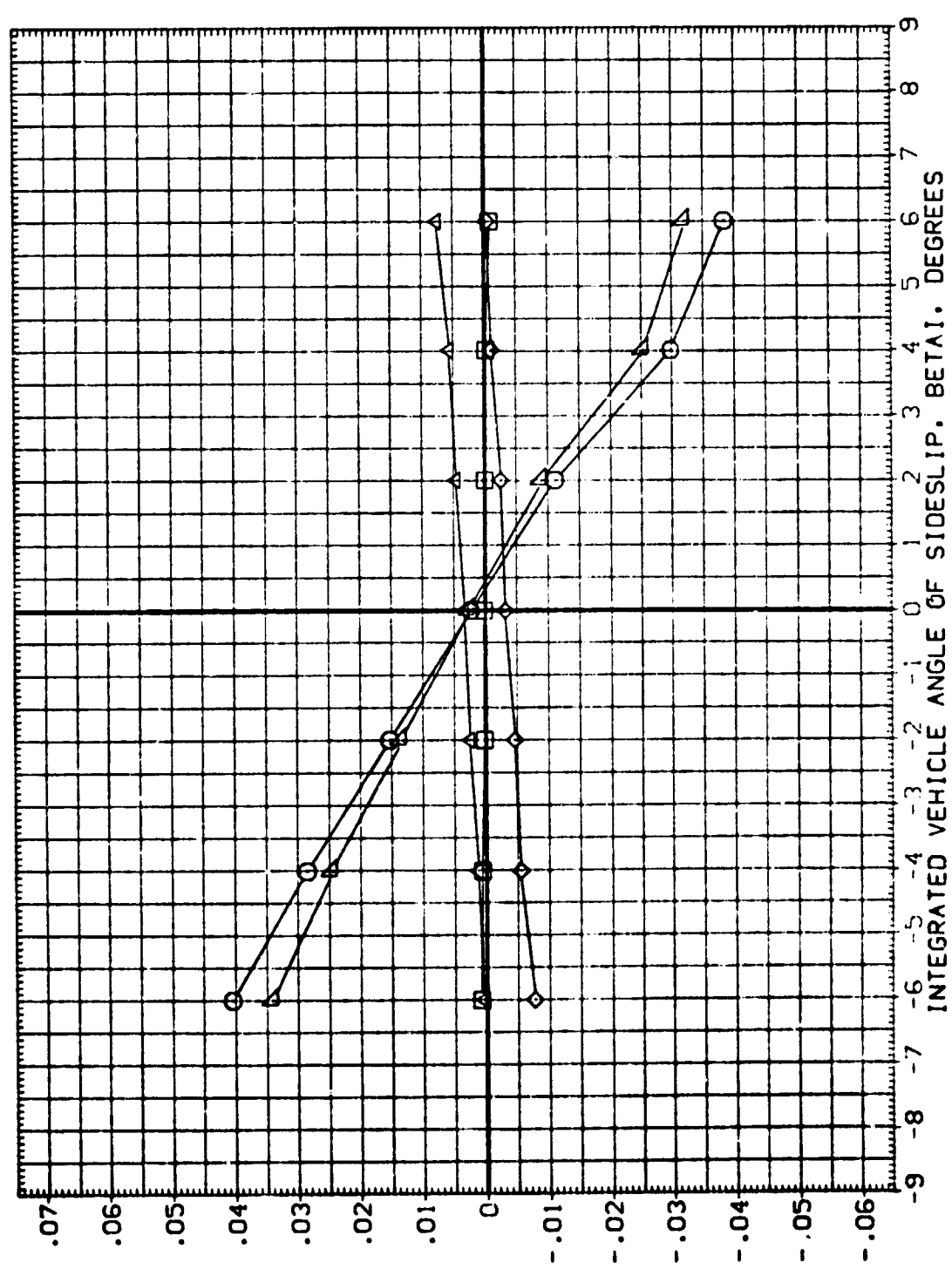


FIG. 27 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0
(D)ALPHA1= .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPOBRK	REFERENCE INFORMATION
(LE1045)	AMES97-019(IAB1) LVAP CRBITER-ALL ML SEALED	8.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LE1145)	AMES97-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(LE1245)	AMES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	8.000	.000	2.200	.000	BREF 1297.0000 IN.
(LE1345)	AMES97-019(IAB1) LVAP R-LRB - ALL ML SEALED	8.000	.000	2.200	.000	XMRP 976.0000 IN. XT
(LE1445)	AMES97-019(IAB1) LVAP INT VEH AL. ML SEALED	8.000	.000	2.200	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

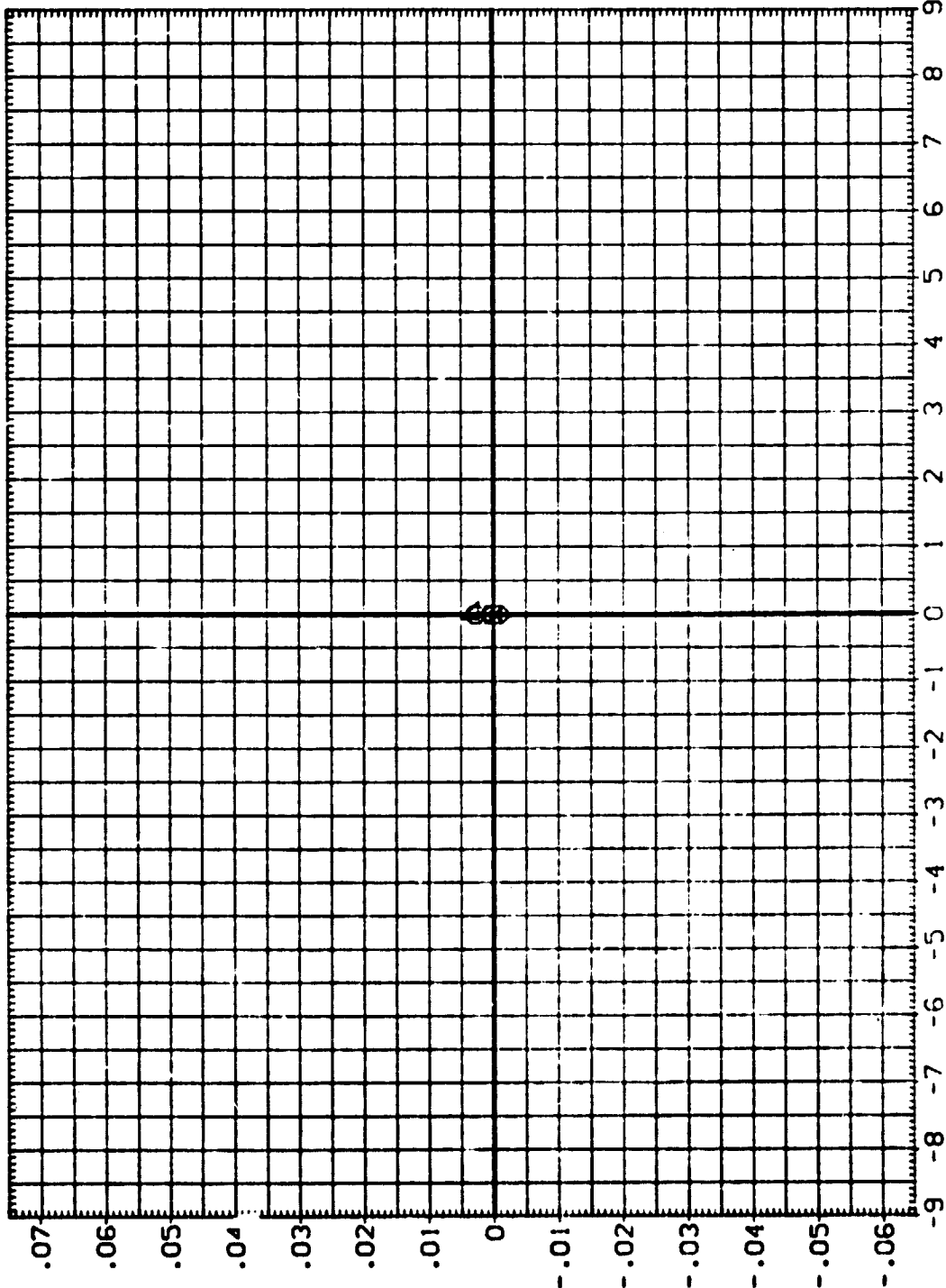


FIG. 27 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0
 (E) ALPHA = 2.00 PAGE 671

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LET045)	APES97-0191(A81) LVAP CRBITER-ALL ML SEALED	8.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LET145)	APES97-0191(A81) LVAP TANK - ALL ML SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(LET145)	APES97-0191(A81) LVAP L-SRB - ALL ML SEALED	8.000	.000	2.200	.000	BREF 1297.0000 IN.
(LET145)	APES97-0191(A81) LVAP R-LRB - ALL ML SEALED	8.000	.000	2.200	.000	XMRP 976.0000 IN.
(LET145)	APES97-0191(A81) LVAP INT VEM ALL ML SEALED	8.000	.000	2.200	.000	ZMRP 400.0000 IN.
						SCALE .0300

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

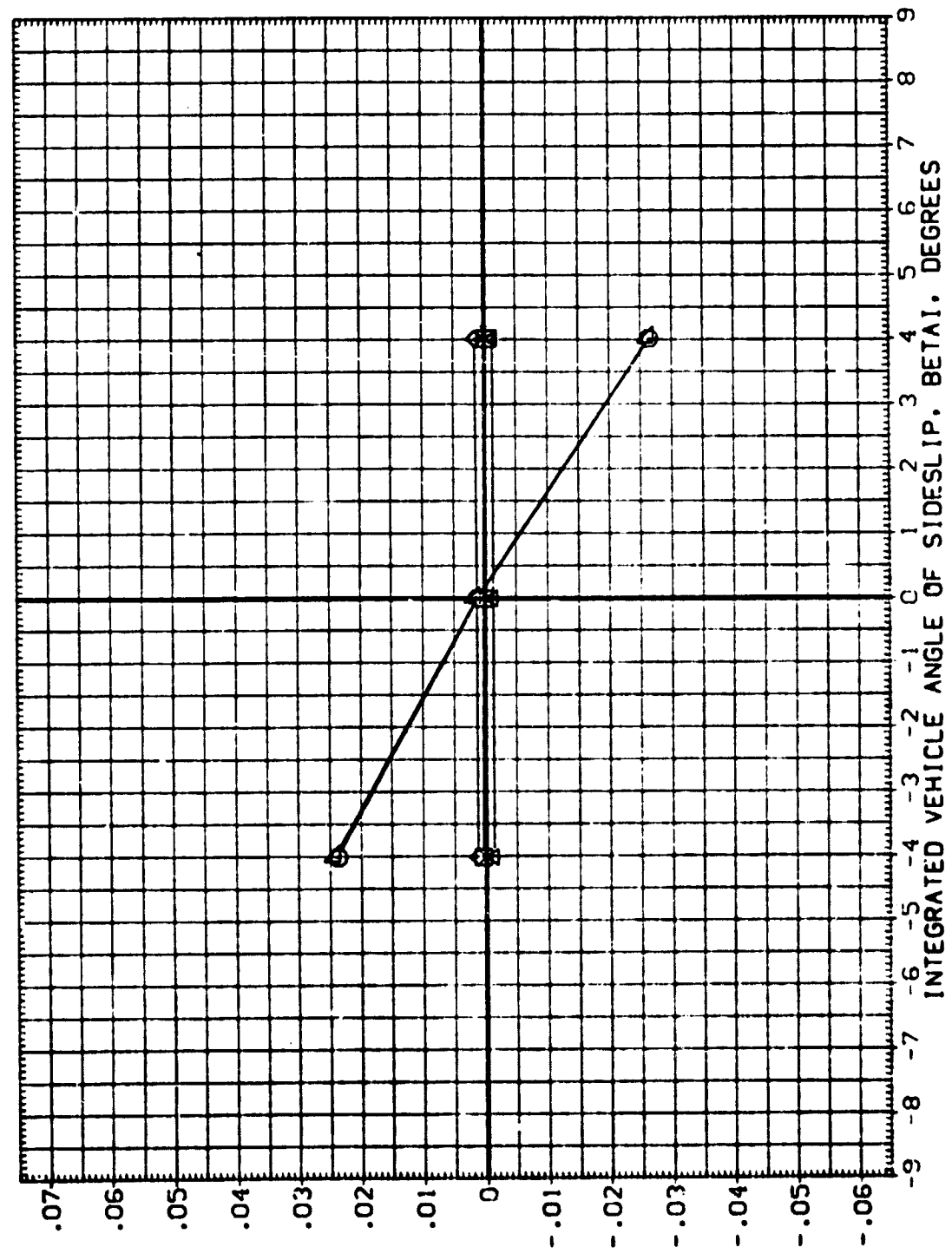


FIG. 27 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=2.2$ $DEV=8/0$
 (F)ALPHA= 4.00 PAGE 672

REPRODUCIBILITY OF THE
ORIGINAL PAGES FOR

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LE1045)	AMES97-0191(1A1) LVAP CRBITER-ALL ML SEALED	8.000	.000	2.200	.000	SREF 2690.0000 SO.FT.
(LE1145)	AMES97-0191(1A1) LVAP TANK - ALL ML SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(LE1245)	AMES97-0191(1A1) LVAP L-SRB - ALL ML SEALED	8.000	.000	2.200	.000	SREF 1297.0000 IN.
(LE1345)	AMES97-0191(1A1) LVAP R-LRB - ALL ML SEALED	8.000	.000	2.200	.000	YMRP 976.0000 IN.
(LE1445)	AMES97-0191(1A1) LVAP INT VEM ALL ML SEALED	8.000	.000	2.200	.000	YMRP 400.0000 IN.
						SCALE .0300

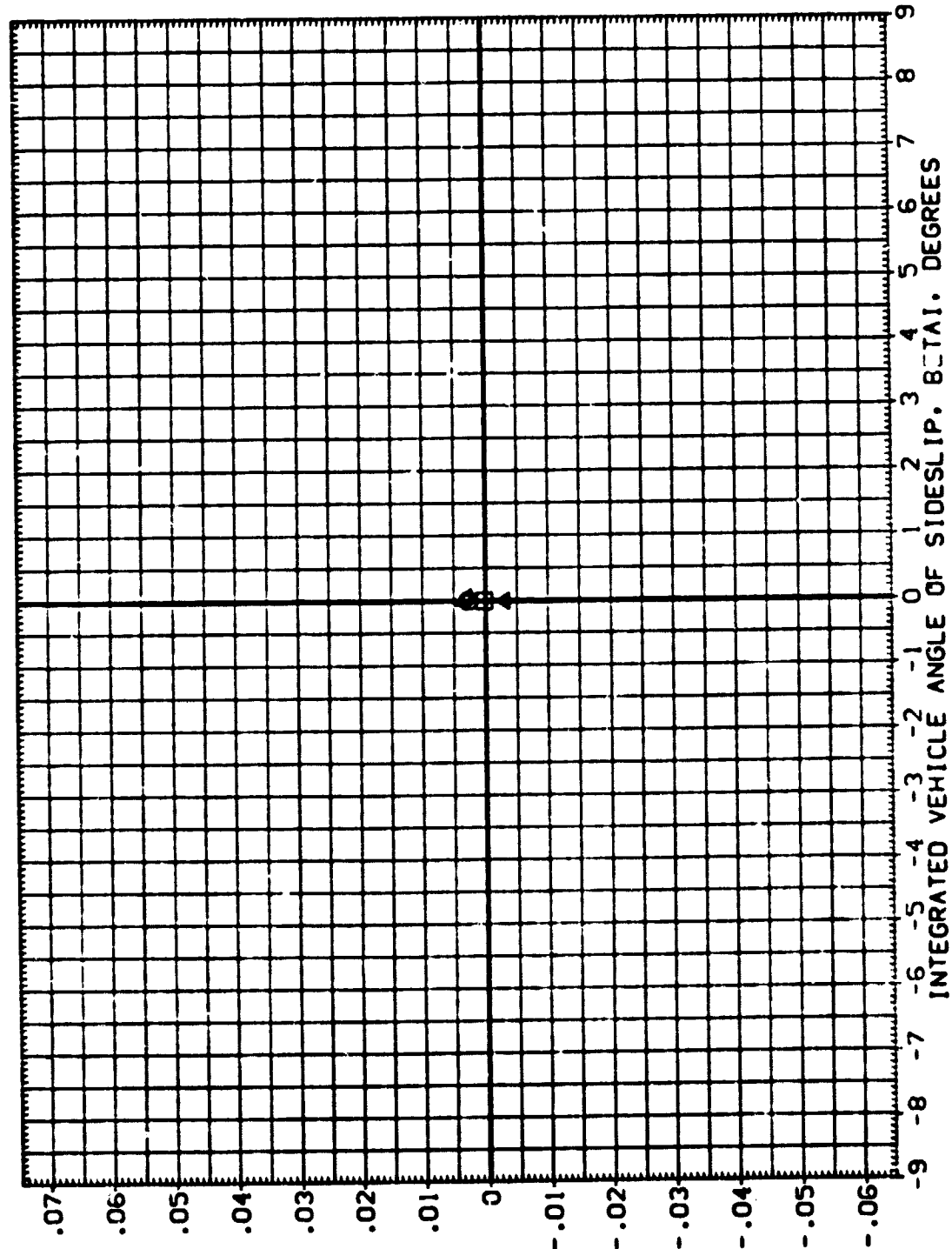


FIG. 27 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0

(G) ALPHA = 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-10	ELV-08	MACH	SPDBRK	REFERENCE INFORMATION
(LE1045)	AME597-019(IAB1) LVAP	8.000	.000	2.200	.000	SREF 2650.0000 SQ.FT.
(LE1145)	AME597-019(IAB1) LVAP	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(LE1L45)	AME597-019(IAB1) LVAP	8.000	.000	2.200	.000	BREF 1297.0000 IN.
(LE1R45)	AME597-019(IAB1) LVAP	8.000	.000	2.200	.000	XMRP 976.0000 IN.
(LE1I45)	AME597-019(IAB1) LVAP	8.000	.000	2.200	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

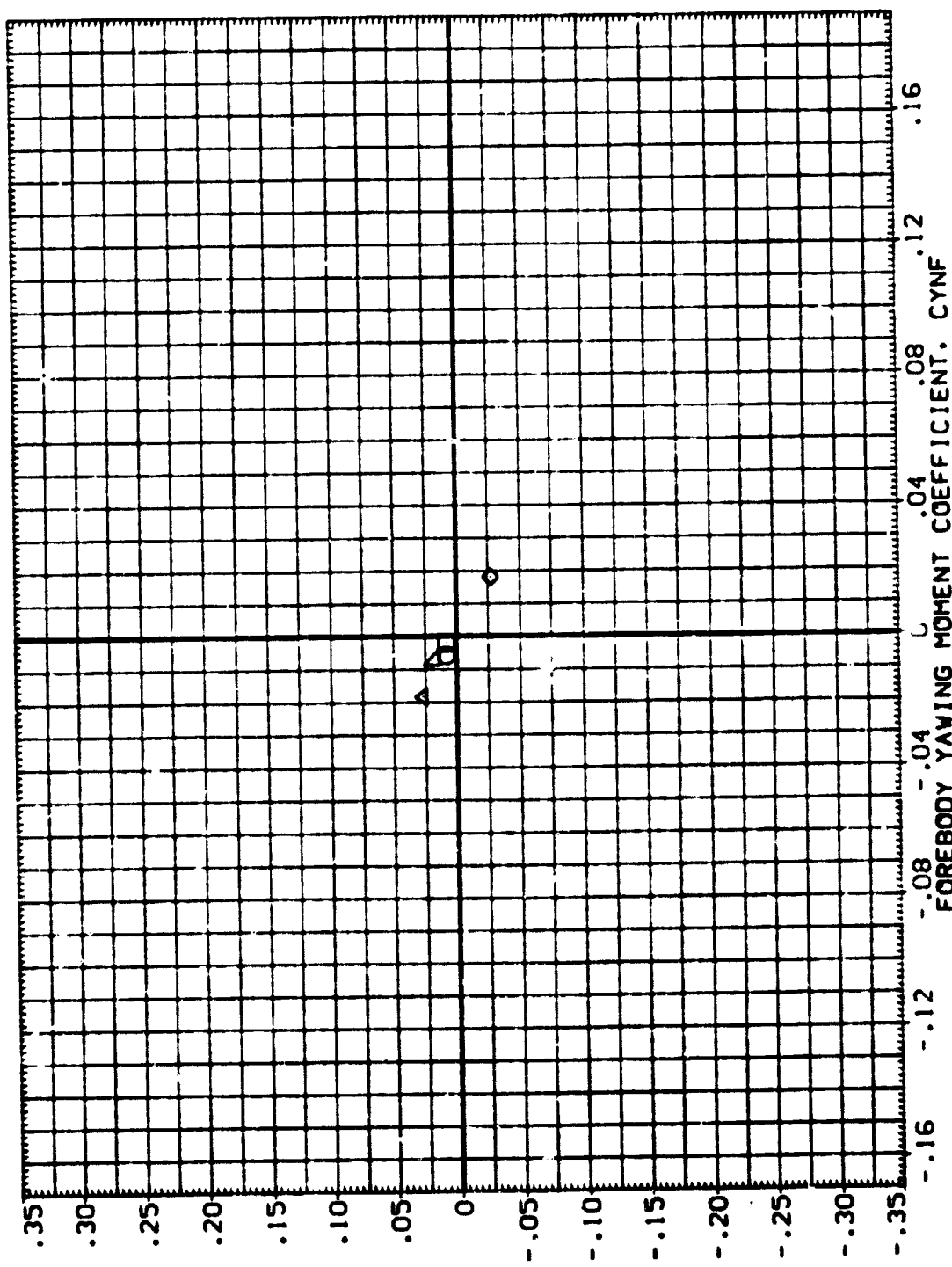


FIG. 27 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS. M=2.2 DEV=8/0
 (A)ALPHA= -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-DB	MACH	SPDRK	REFERENCE INFORMATION
(LE1045)	AMES97-019(1A81) LVAP CRBTER-ALL HL SEALED	8.000	.000	2.200	.000	SREF 2690.0000 SO.FT.
(LE1145)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(LE1145)	AMES97-019(1A81) LVAP L-SPB - ALL HL SEALED	8.000	.000	2.200	.000	BREF 1297.0000 IN.
(LE1145)	AMES97-019(1A81) LVAP R-SPB - ALL HL SEALED	8.000	.000	2.200	.000	XMRP 976.0000 IN.
(LE1145)	AMES97-019(1A81) LVAP INT VEM ALL HL SEALED	8.000	.000	2.200	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

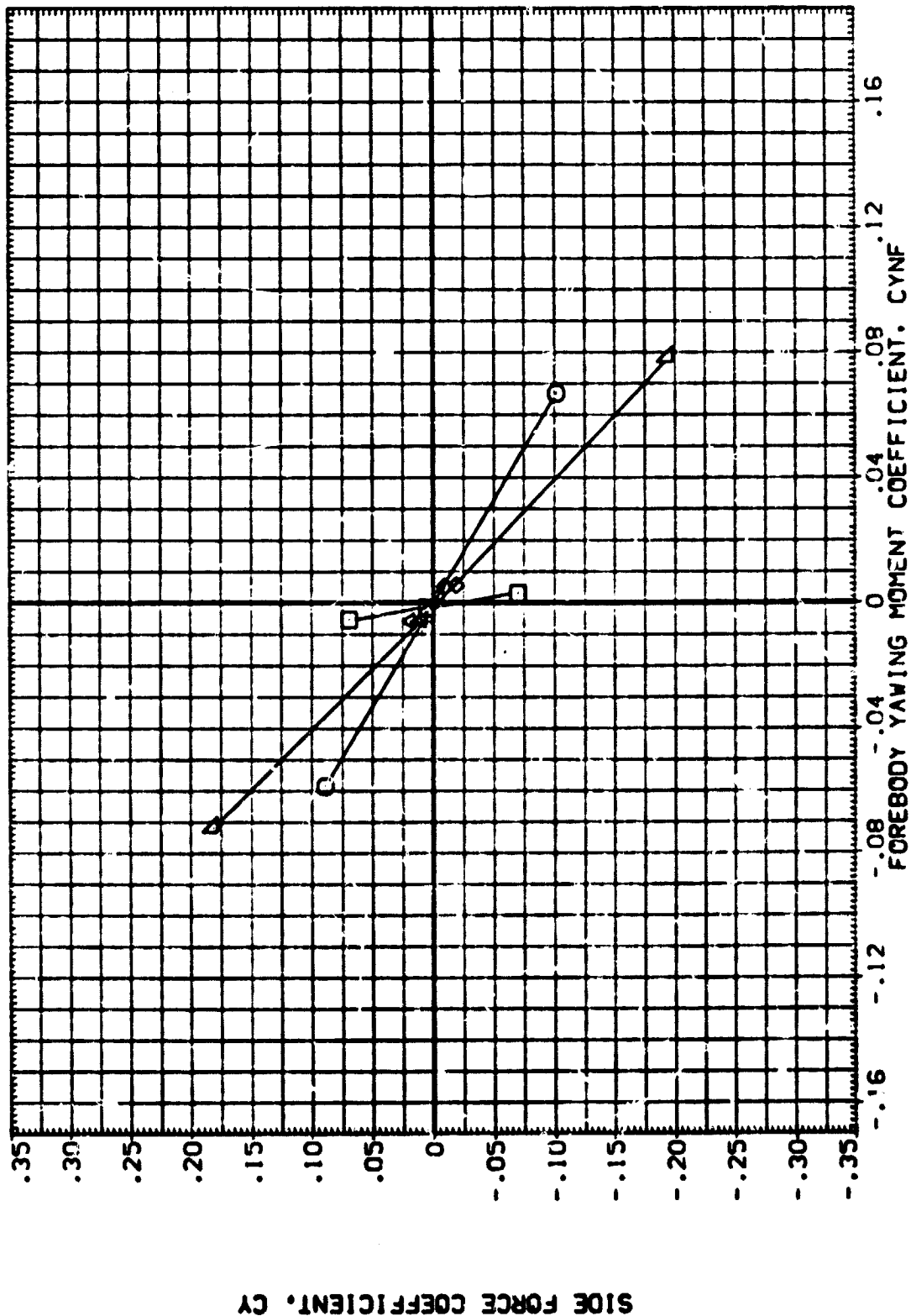


FIG. 27 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0

(B)ALPHA= -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LE1045)	AMES97-019(1A81) LVAP ORBITTER-ALL HL SEALED	9.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LE1145)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(LE1245)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.200	.000	BREF 1297.0000 IN.
(LE1345)	AMES97-019(1A81) LVAP R-TSR - ALL HL SEALED	8.000	.000	2.200	.000	XRPF 976.0000 IN.
(LE1445)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	.000	2.200	.000	YMRP .0000 IN.
(LE1545)						ZMRP 400.0000 IN.
						SCALE .0300

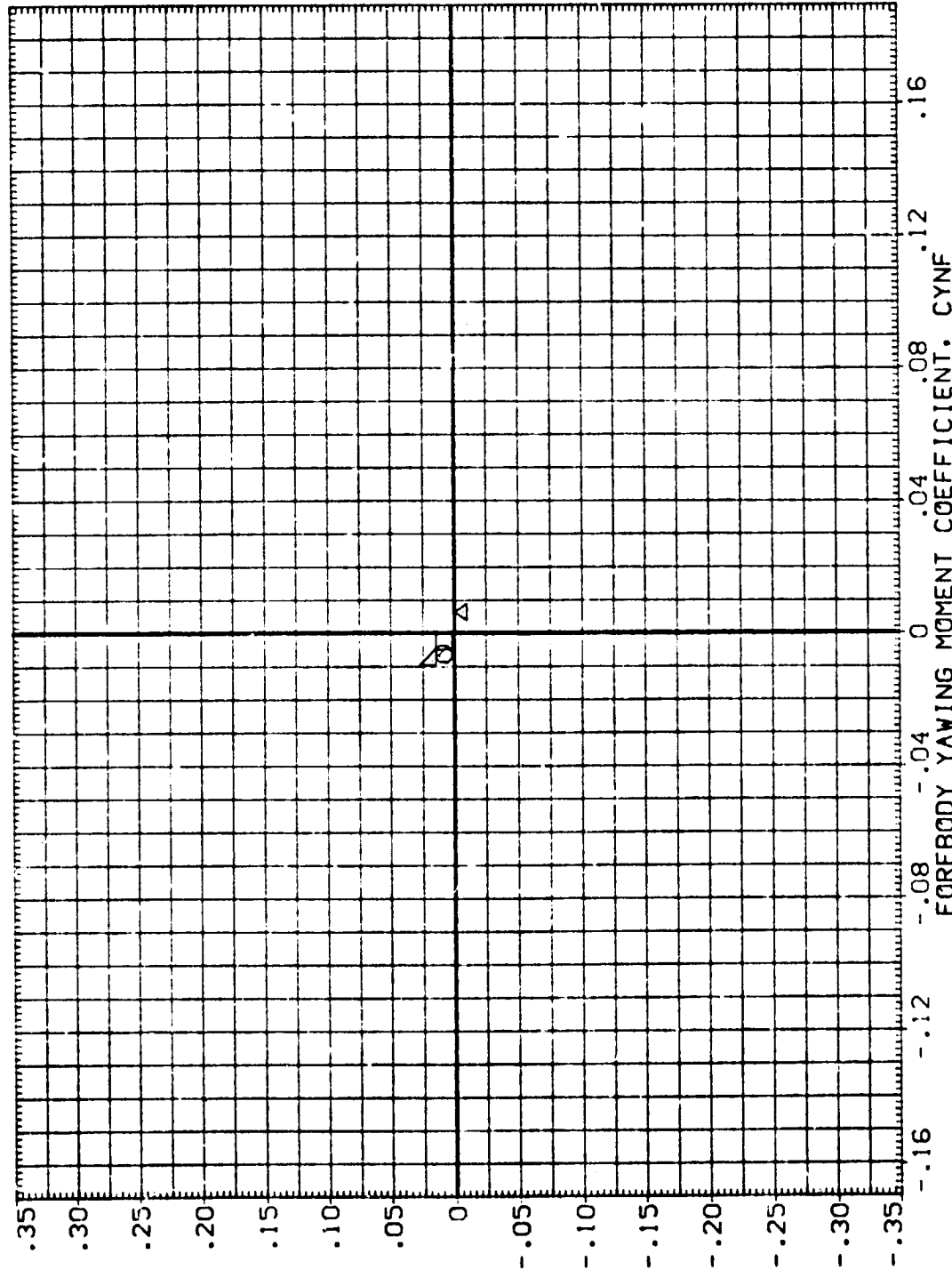


FIG. 27 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0
 (C)ALPHA= -2.00 PAGE 676

SIDE FORCE COEFFICIENT, CY

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LE1045)	AMES97-019(1A81) LVAP ORBITER-ALL HL SEALED	8.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LE1145)	AMES97-019(1A81) LVAP TANK - ALL " SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(LE1245)	AMES97-019(1A81) LVAP L-SRB - ALL " SEALED	8.000	.000	2.200	.000	BREF 1297.0000 IN.
(LE1345)	AMES97-019(1A81) LVAP R-LRB - ALL " SEALED	8.000	.000	2.200	.000	YMRP 976.0000 IN.
(LE1445)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	.000	2.200	.000	ZMRP 400.0000 IN.
						SCALE .0300

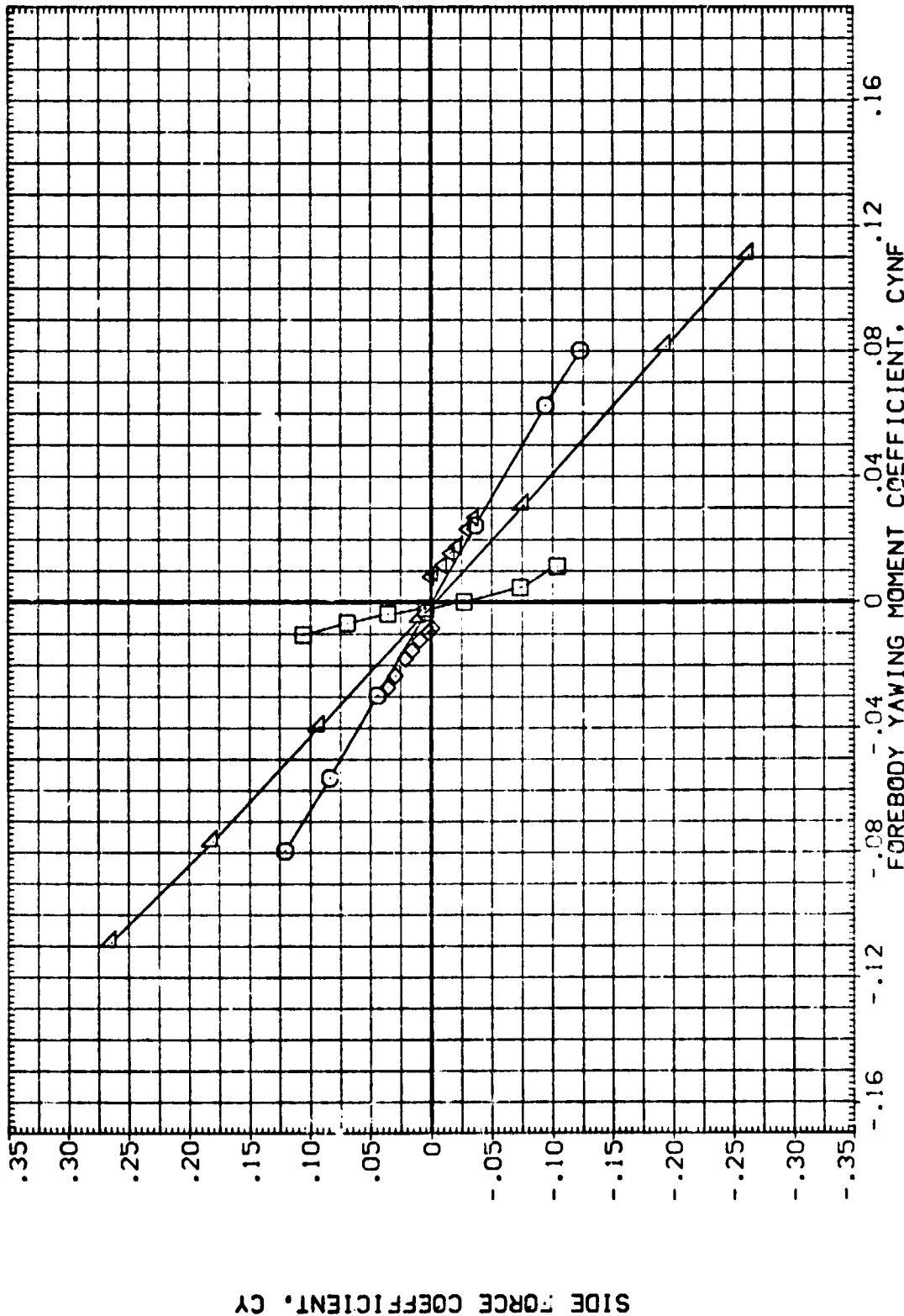


FIG. 27 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0

(D)ALPHA= .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MAC	SPOBRK	REFERENCE INFORMATION	SO.FT.
(LETO45)	AMES97-019C(IAB1) LVAP ORBITTER-ALL HL SEALED	8.000	.000	2.200	.000	SREF	2690.0000
(LETT45)	AMES97-019C(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.200	.000	BREF	1297.0000
(LETL45)	AMES97-019C(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.200	.000	BREF	1297.0000
(LETR45)	AMES97-019C(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	.000	2.200	.000	XMRP	976.0000
(LETT45)	AMES97-019C(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.200	.000	YMRP	.0000
(LETT45)						ZMRP	400.0000
						SCALE	.0300

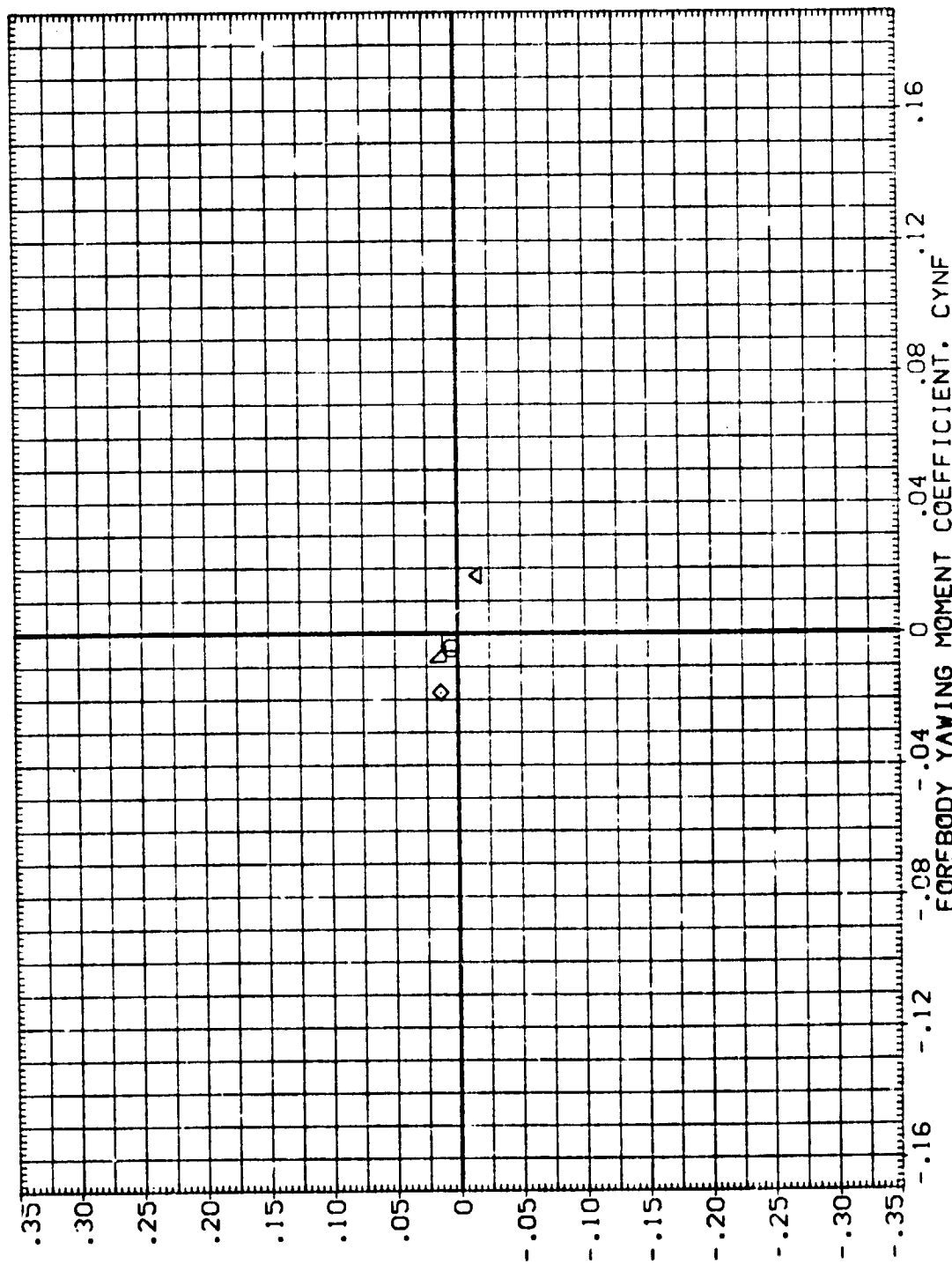


FIG. 27 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0
(E)ALPHA= 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	1ACH	SPOBRK	REFERENCE INFORMATION
(LETO45)	AMES97-019(IAB1) LVAP ORRITER-ALL HL SEALED	8.000	.000	2.200	.000	SREF 2590.0000 SQ.FT.
(LETT45)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(LETL45)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.200	.000	BREF 1297.0000 IN.
(LETR45)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	.000	2.200	.000	XMRP 976.0000 IN.
(LETT45)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.200	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

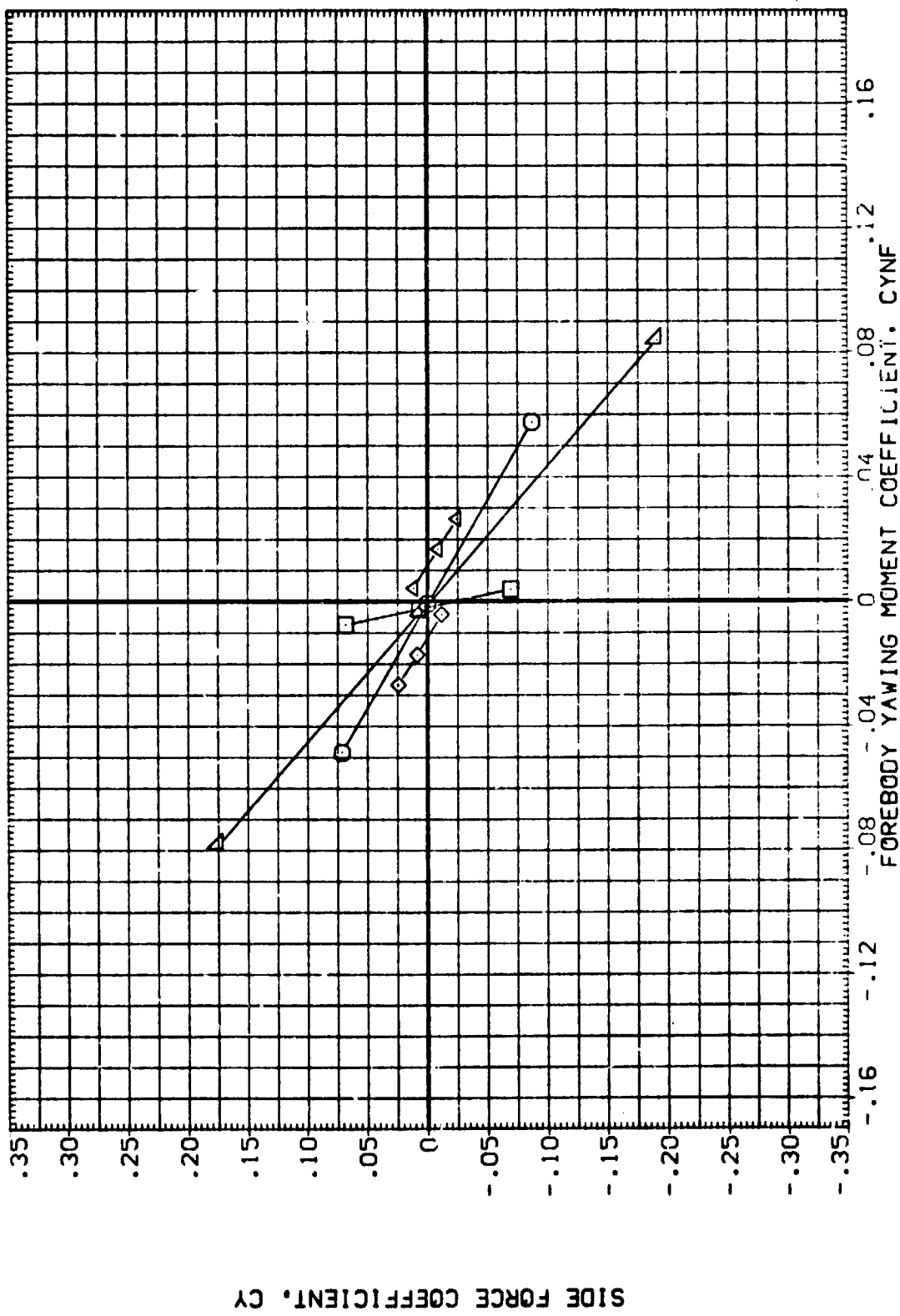


FIG. 27 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0
(F)ALPHA= 4.00 PAGE 679

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(LETD45)	AMES97-019(1A81) LVAP CRB:ITER-ALL HL SEALED	8.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LETD45)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(LETD45)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.200	.000	BREF 1297.0000 IN.
(LETD45)	AMES97-019(1A81) LVAP R-SRB - ALL HL SEALED	8.000	.000	2.200	.000	XMRP 976.0000 IN.
(LETD45)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	.000	2.200	.000	YMRP 400.0000 IN.
(LETD45)						ZMRP 400.0000 IN.
						SCALE .0300

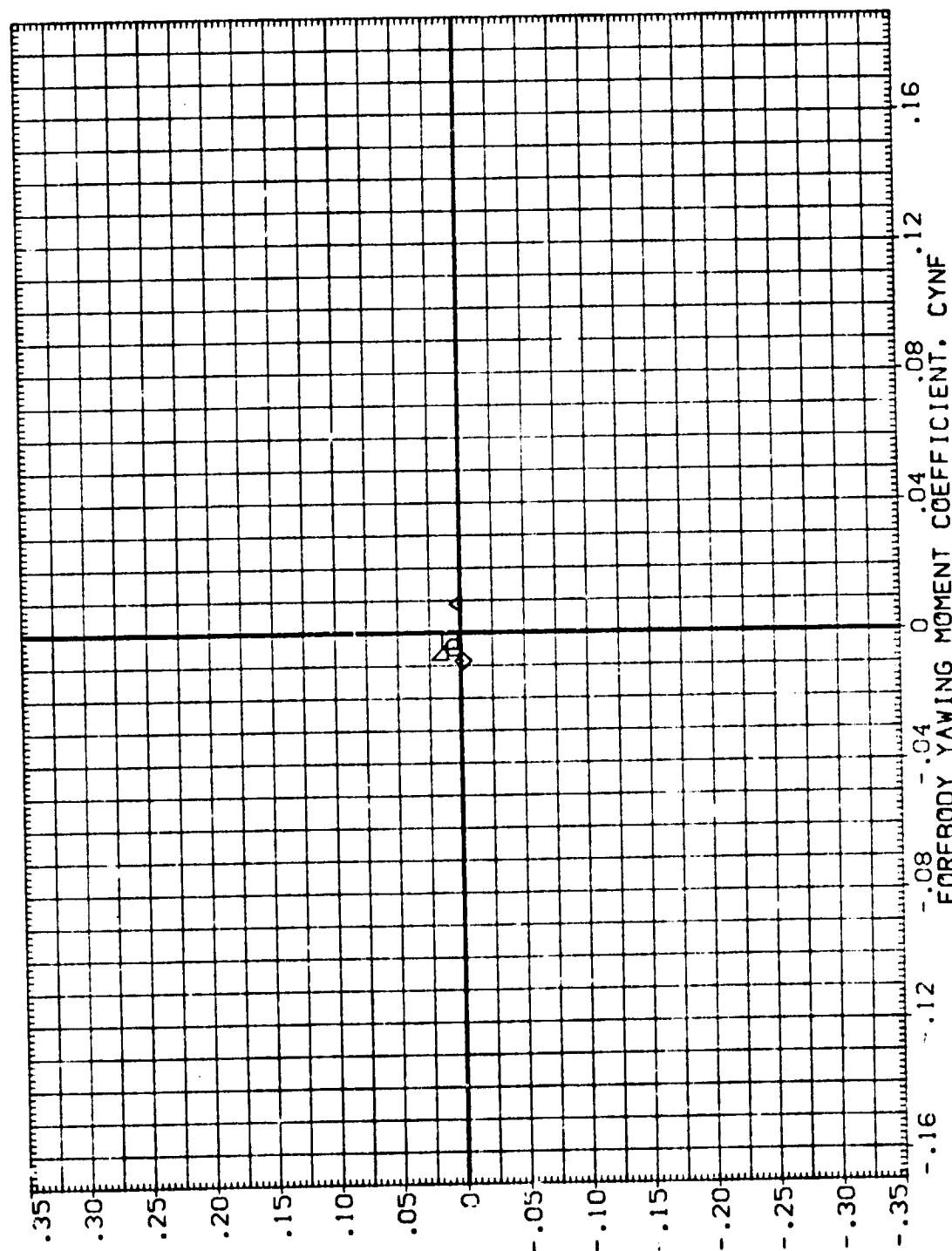


FIG. 27 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0
 (G)ALPHA= 6.00 PAGE 680

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-19	ELV-CB	MACH	SPDBRK	REFERENCE INFORMATION
(LE1045)	AMES97-019(1A81) LVAP CRB:TER-ALL HL SEALED	8.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LE1145)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(LE1145)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.200	.000	BREF 1297.0000 IN.
(LE1145)	AMES97-019(1A81) LVAP R-LRB - ALL HL SEALED	8.000	.000	2.200	.000	XMRP 976.0000 IN.
(LE1145)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	.000	2.200	.000	YMRP .0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

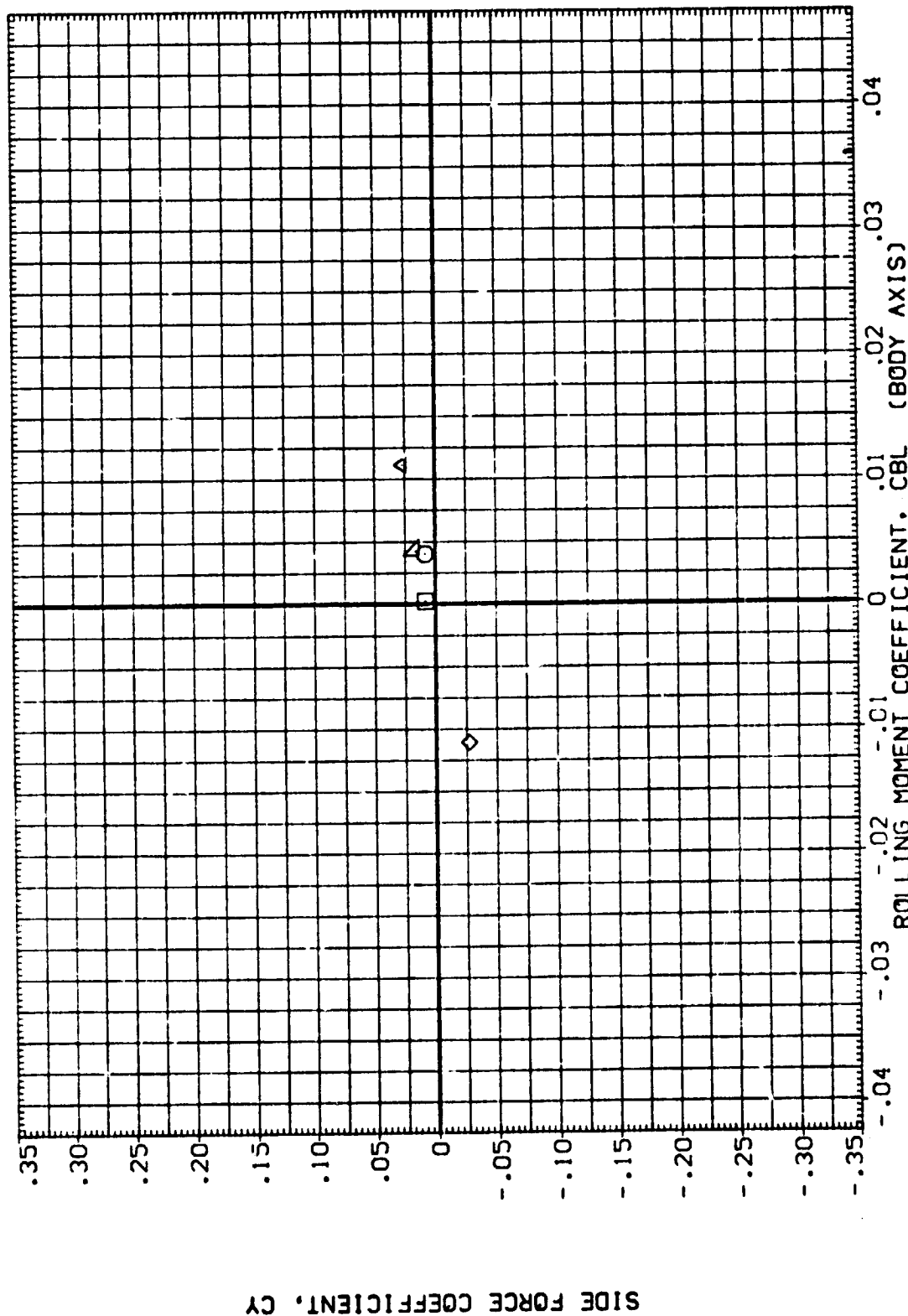


FIG. 27 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0

(A) ALPHA = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPOBRK	REFERENCE INFORMATION			
(LETO45)	AME597-019(1A81) LVAP CRBITER ALL HL SEALED	8.000	.000	2.200	.000	SREF	2590.0000	SQ.FT.	
(LETT45)	AME597-019(1A81) LVAP TANK - ALL HL SEALED	8.000	.000	2.200	.000	LREF	1297.0000	IN.	
(LETL45)	AME597-019(1A81) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.200	.000	BREF	1297.0000	IN.	XT
(LETR45)	AME597-019(1A81) LVAP R-LRB - ALL HL SEALED	8.000	.000	2.200	.000	XMRP	976.0000	IN.	YT
(LETT45)	AME597-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	.000	2.200	.000	YMRP	400.0000	IN.	ZT
						ZMRP	400.0000	IN.	ZT
						SCALE	.0300		

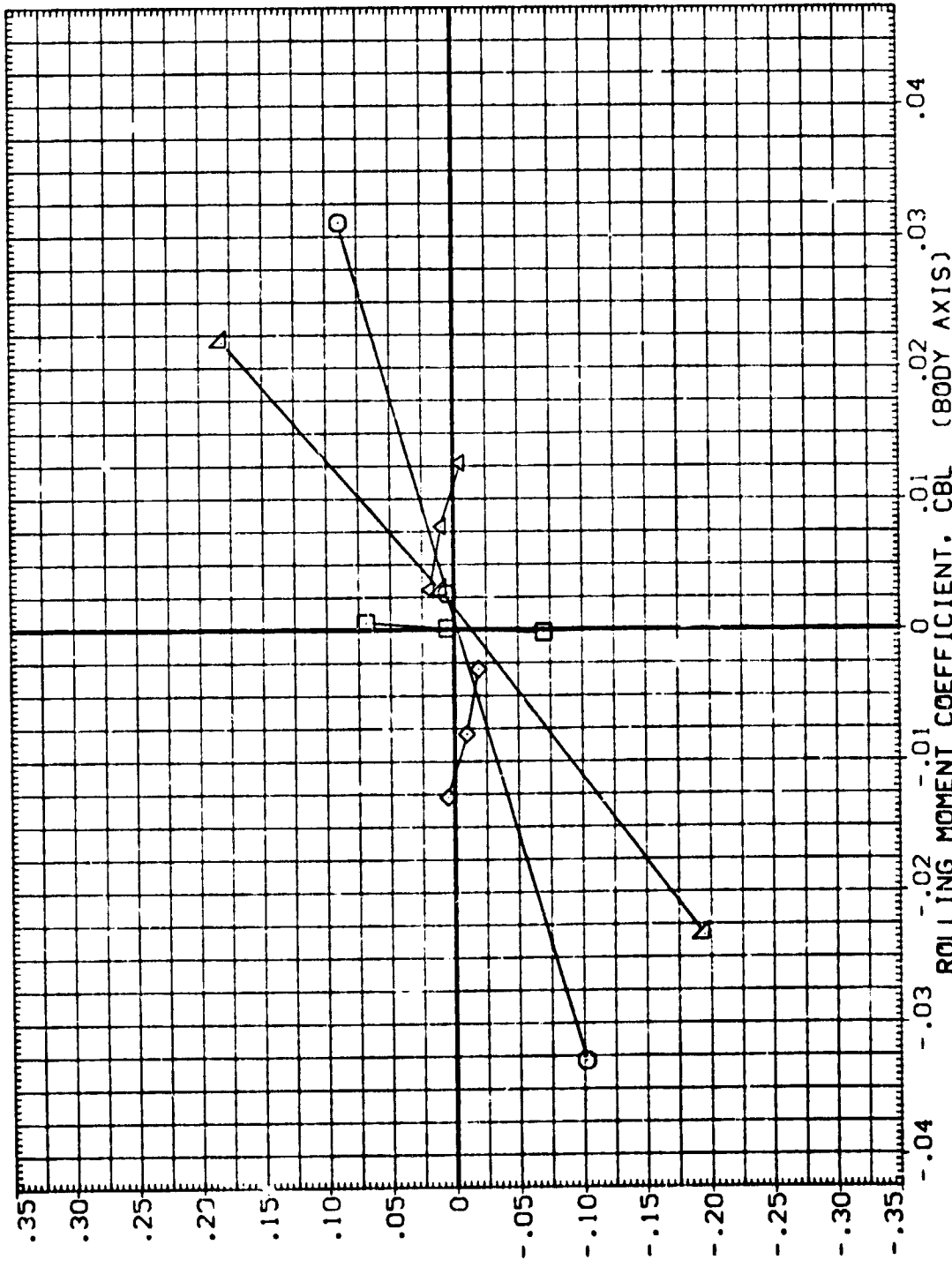


FIG. 27 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0
 (B)ALPHA= -4.00
 PAGE 682

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDBRK	REFERENCE INFORMATION
(LETD45)	ANE597-013(1AB1) LVAP OPBITER-ALL HL SEALED	8.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LETT45)	ANE597-019(1AB1) LVAP TANK - ALL HL SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(LETL45)	ANE597-019(1AB1) LVAP L-SRB - ALL HL SEALED	8.000	.000	2.200	.000	BREF 1297.0000 IN.
(LETR45)	ANE597-019(1AB1) LVAP R-LRB - ALL HL SEALED	8.000	.000	2.200	.000	XMRP 976.0000 IN. XT
(LETT45)	ANE597-019(1AB1) LVAP INT VEH ALL HL SEALED	8.000	.000	2.200	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

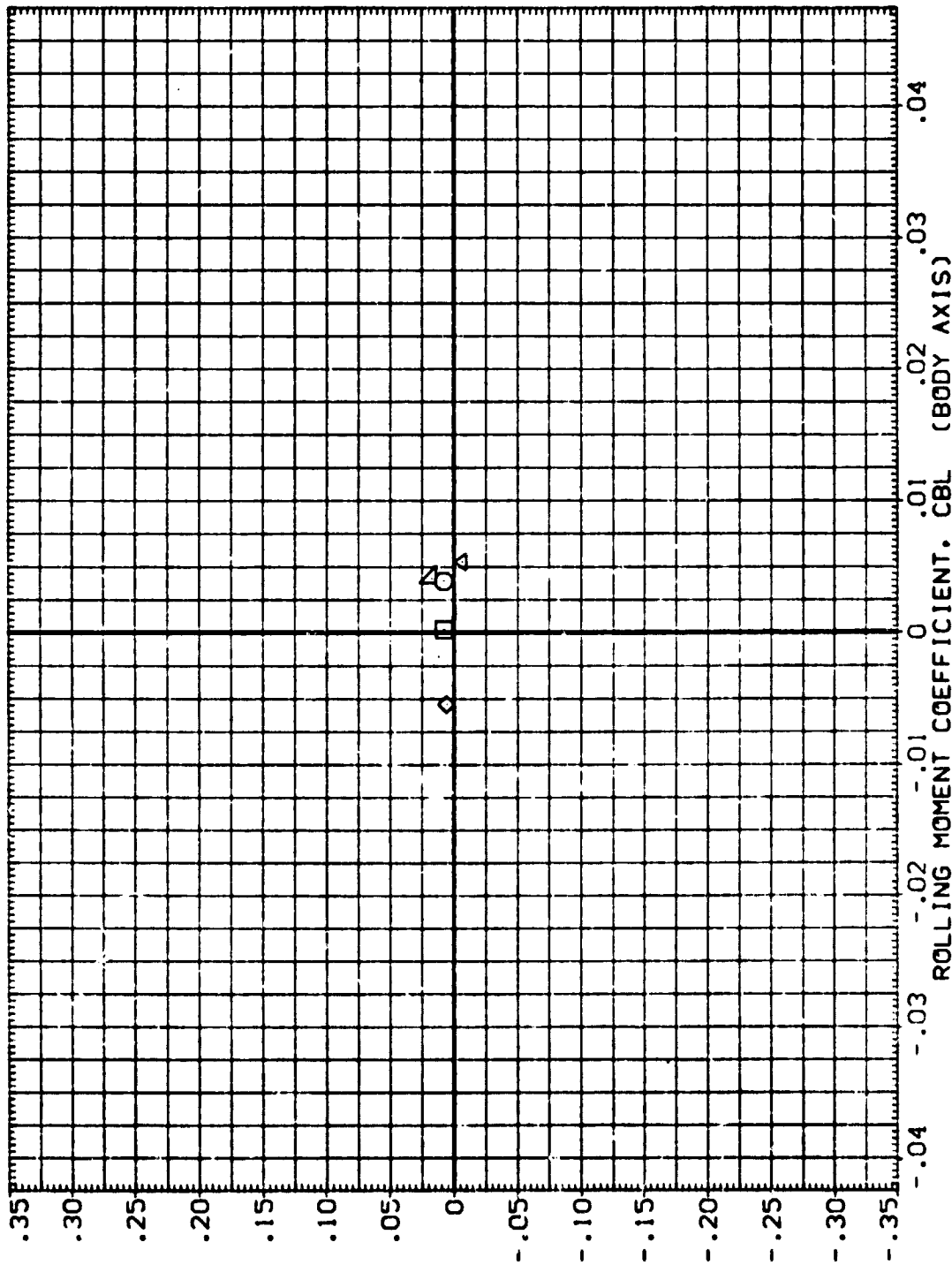


FIG. 27 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS. M=2.2 DEV=8/0
(C) ALPHA = -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDRK	REFERENCE INFORMATION
(LET045)	AMES97-019(IAB1) LVAP	8.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LET145)	AMES97-019(IAB1) LVAP	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(LET145)	AMES97-019(IAB1) LVAP	8.000	.000	2.200	.000	BREF 1297.0000 IN.
(LET145)	AMES97-019(IAB1) LVAP	8.000	.000	2.200	.000	YMRP 976.0000 IN.
(LET145)	AMES97-019(IAB1) LVAP	8.000	.000	2.200	.000	ZMRP 400.0000 IN.
						SCALE .0300

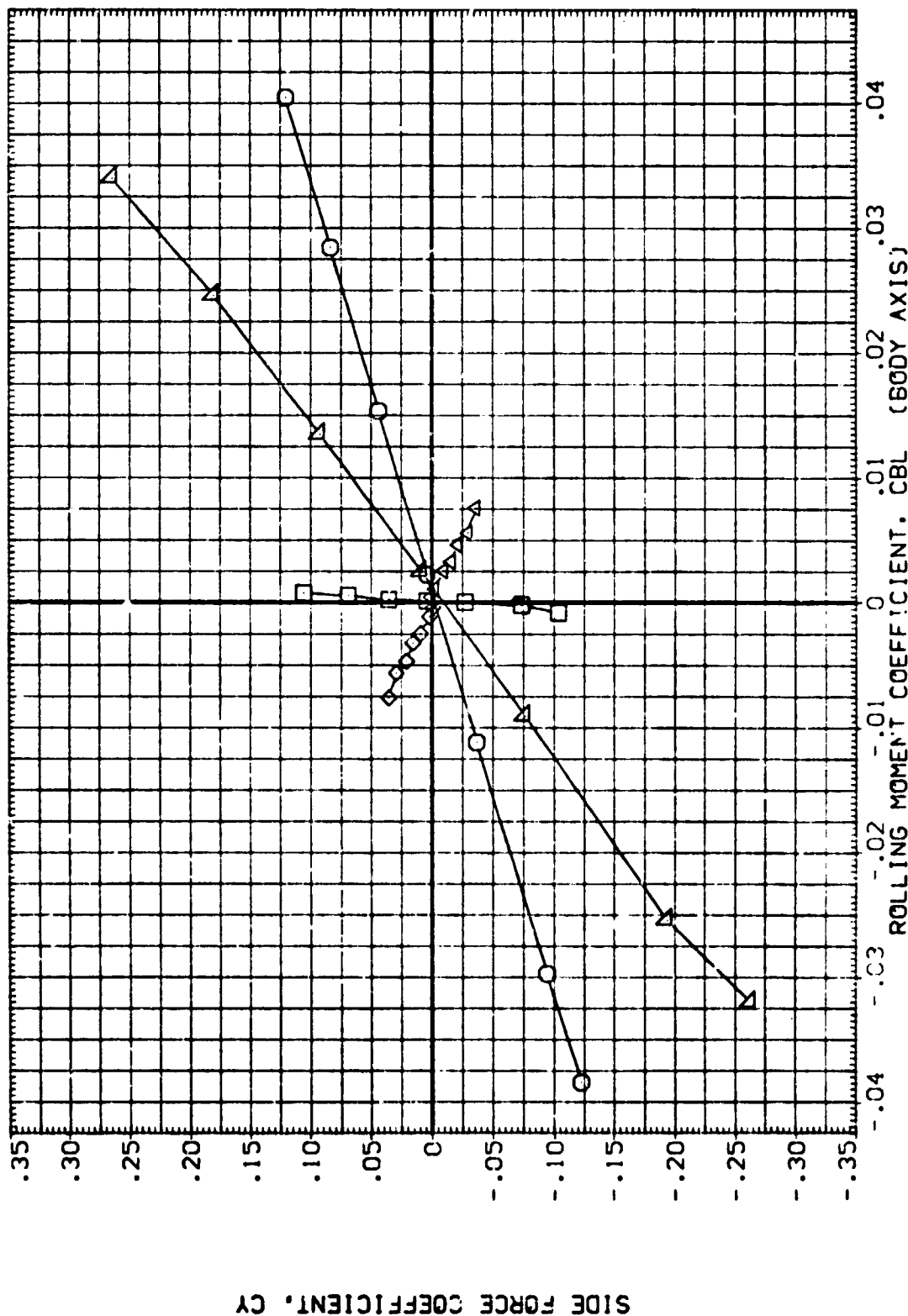
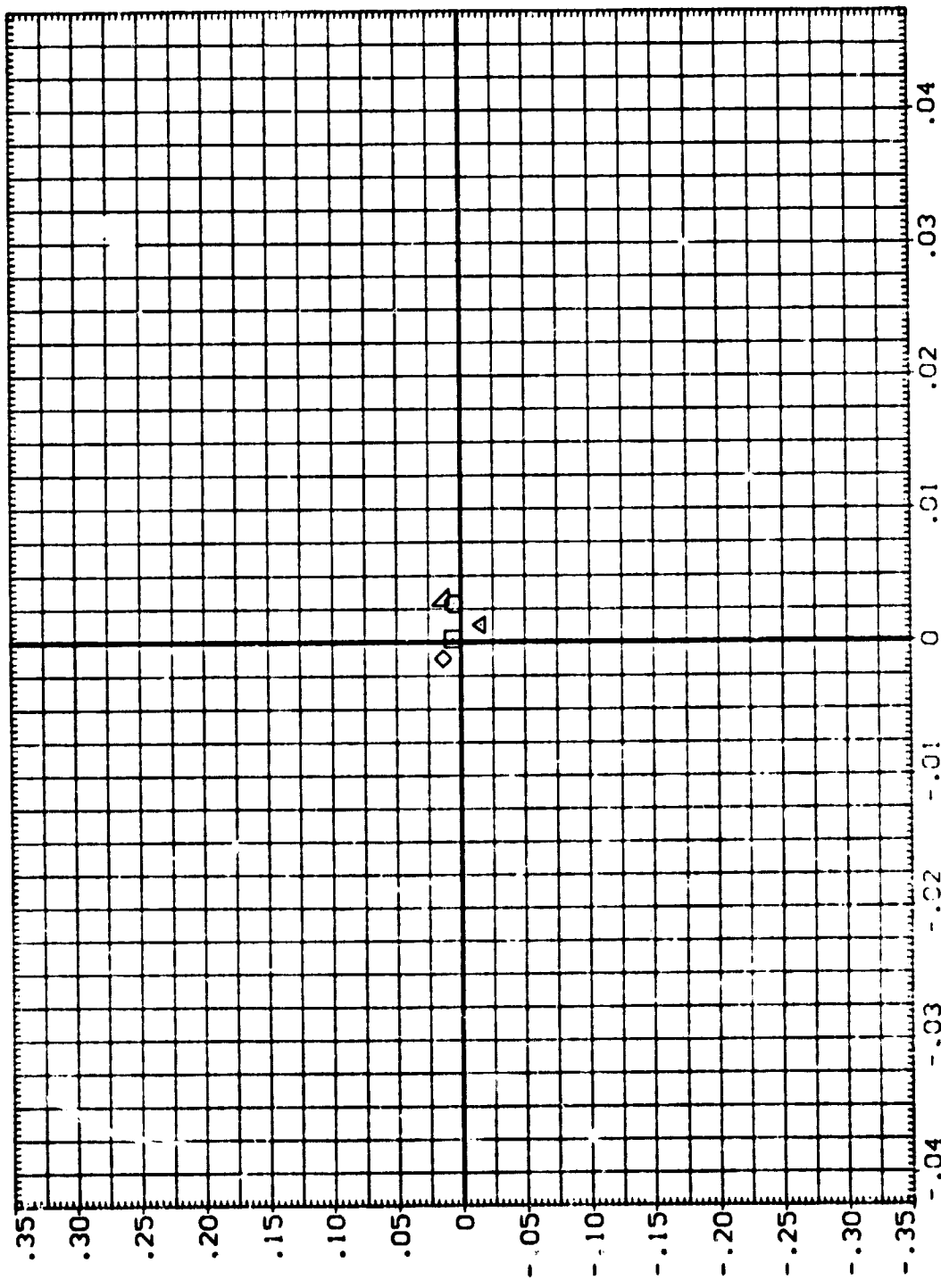


FIG. 27 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0
(D) ALPHA = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRBK	REFERENCE INFORMATION
(LE1045)	AMES97-019(1AB1) LVAP CPB1 TER-ALL ML SEALED	8.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LE1145)	AMES97-019(1AB1) LVAP TANK - ALL ML SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(LE1L45)	AMES97-019(1AB1) LVAP L-SRB - ALL ML SEALED	8.000	.000	2.200	.000	BREF 1297.0000 IN.
(LE1R45)	AMES97-019(1AB1) LVAP R-LRB - ALL ML SEALED	8.000	.000	2.200	.000	XHRP 976.0000 IN.
(LE1T45)	AMES97-019(1AB1) LVAP INT VEH ALL ML SEALED	8.000	.000	2.200	.000	YHRP 400.0000 IN.
						ZHRP 400.0000 IN.
						SCALE .0300



ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

FIG. 27 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPOBRK	REFERENCE INFORMATION
(LETD45)	AMES97-019(IAB1) LVAP	8.000	.000	2.200	.000	SREF 2690.0000 SQ.FT.
(LETT45)	AMES97-019(IAB1) LVAP	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(LETL45)	AMES97-019(IAB1) LVAP	8.000	.000	2.200	.000	BREF 1297.0000 IN.
(LETR45)	AMES97-019(IAB1) LVAP	8.000	.000	2.200	.000	XRRP 976.0000 IN.
(LETT45)	AMES97-019(IAB1) LVAP	8.000	.000	2.200	.000	ZRRP 400.0000 IN.
						SCALE .0300

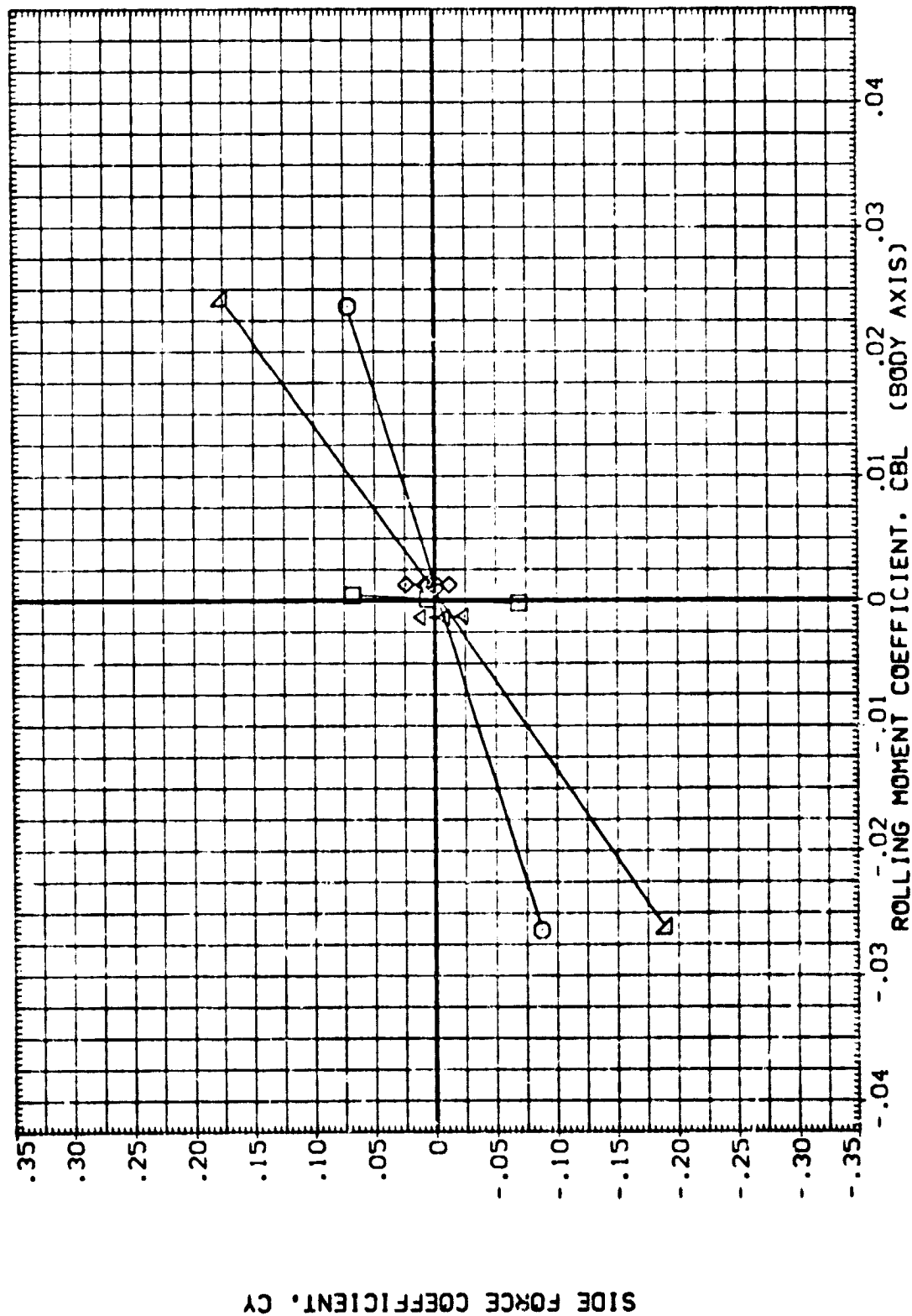


FIG. 27 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0

(F) ALPHA= 4.00 PAGE 686

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(LETT45)	AMES97-019(IAB1) LVAP ORBITER-ALL ML SEALED	8.000	.000	2.200	.000	SREF 4530.0000 SQ.FT.
(LETT45)	AMES97-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	.000	2.200	.000	LREF 1237.0000 IN.
(LETT45)	AMES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	8.000	.000	2.200	.000	BREF 1297.0000 IN.
(LETT45)	AMES97-019(IAB1) LVAP R-LRB - ALL ML SEALED	8.000	.000	2.200	.000	XMRP 976.0000 IN.
(LETT45)	AMES97-019(IAB1) LVAP INT VEH ALL ML SEALED	8.000	.000	2.200	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

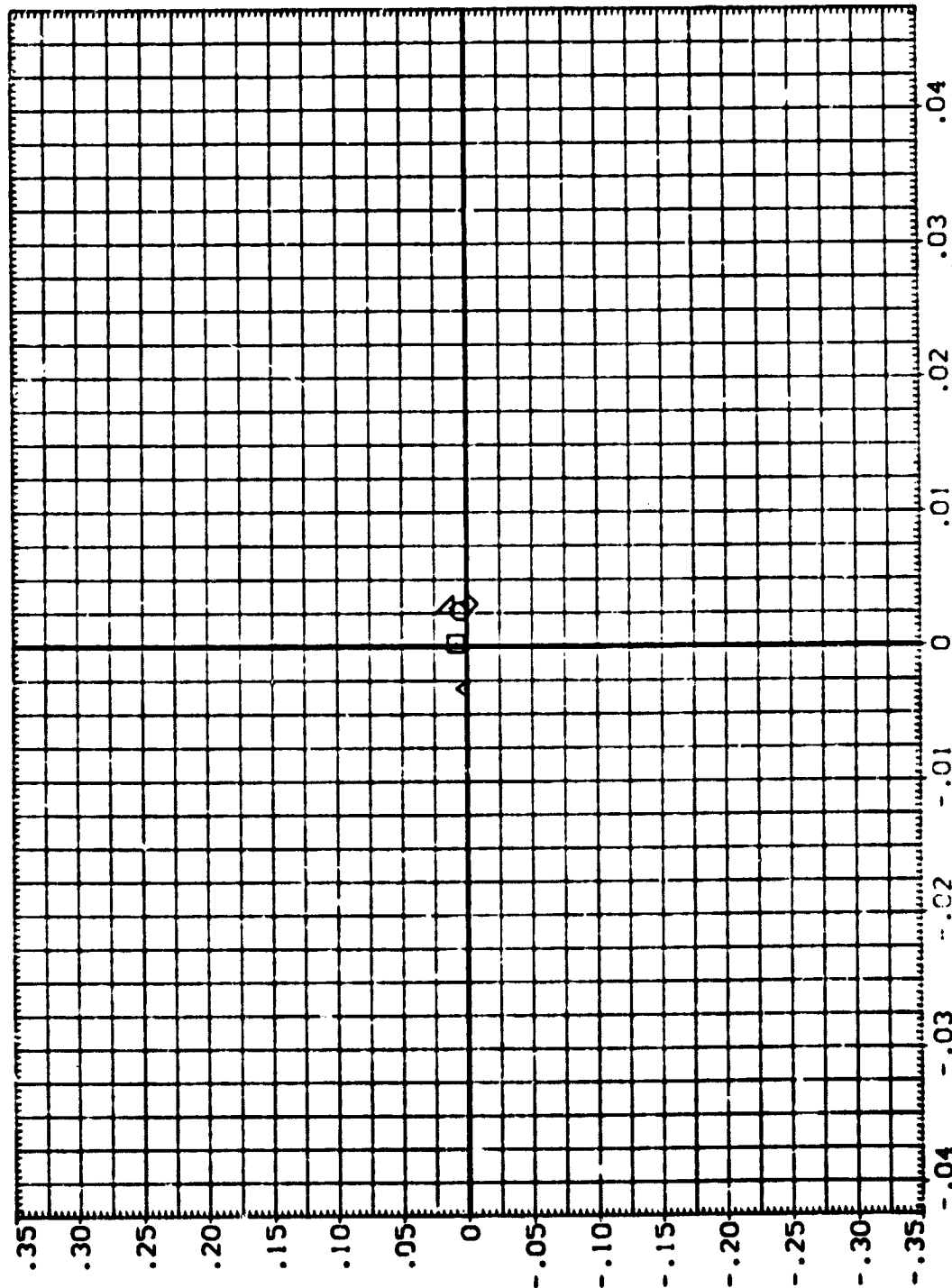


FIG. 27 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.2 DEV=8/0
(G)ALPHA= 6.06

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-CB	MACH	SPDRBK	REFERENCE INFORMATION
(L1T076)	APES97-0191(A81) LVAP ORBITER-ALL ML SEALED	8.000	-4.000	2.500	.000	SREF 2690.0000 53.FT.
(L1T136)	APES97-0191(A81) LVAP TANK - ALL ML SEALED	8.000	-4.000	2.500	.000	LREF 1297.0000 IN.
(L1T136)	APES97-0191(A81) LVAP L-SRB - ALL ML SEALED	8.000	-4.000	2.500	.000	BREF 1297.0000 IN.
(L1T136)	APES97-0191(A81) LVAP R-LRH - ALL ML SEALED	8.000	-4.000	2.500	.000	YHRP 976.0000 IN. XT
(L1T136)	APES97-0191(A81) LVAP INT VEH ALL ML SEALED	8.000	-4.000	2.500	.000	ZHRP 400.0000 IN. YT
						SCALE .0300

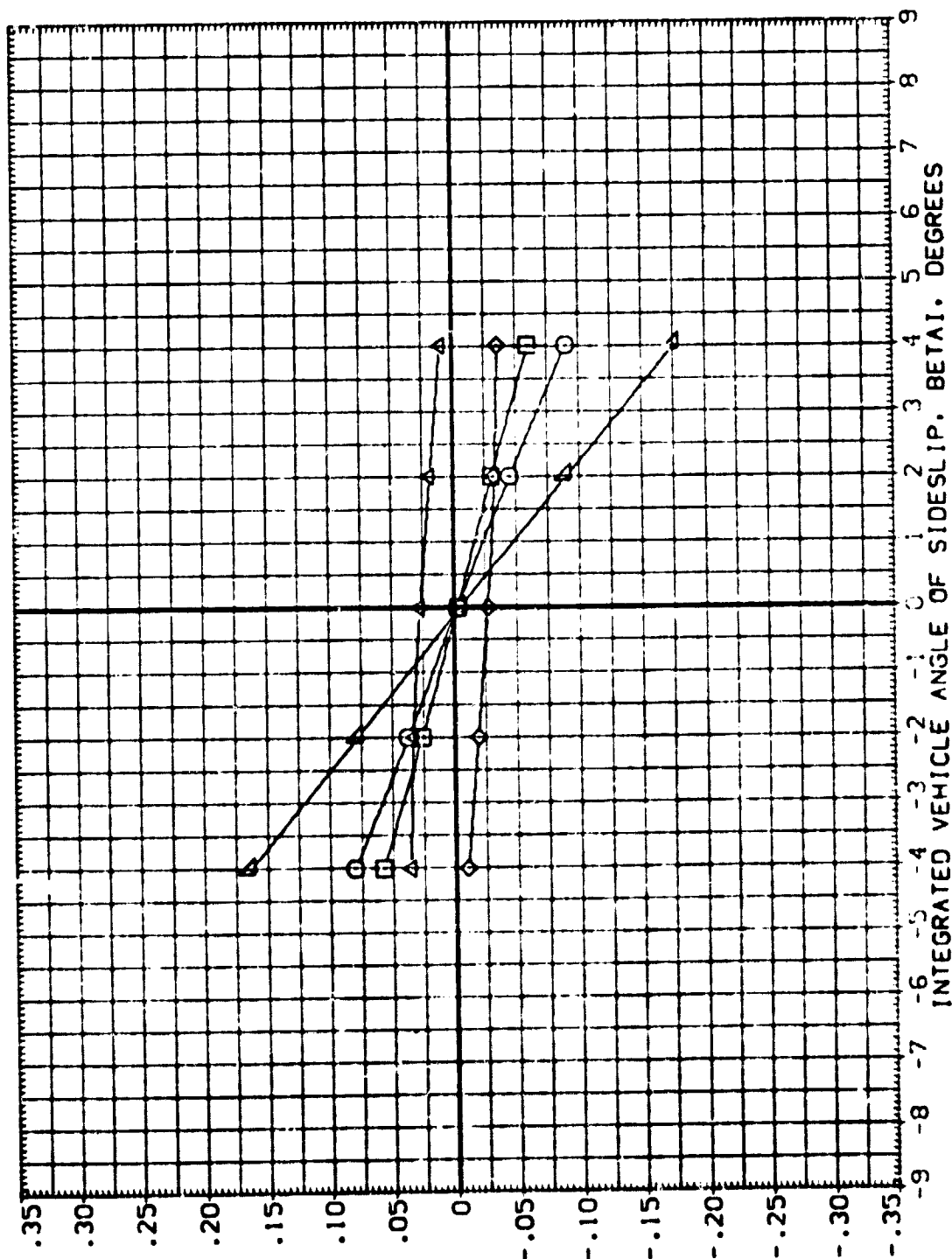


FIG. 28 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4

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DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(LE1038)	○	ARE597-019C(1AB1) LVAP ORB:TER-ALL ML SEALED	8.000	-4.000	2.500	.000	SREF 2690.0000 SO.FT.
(LE1128)	□	ARE597-019C(1AB1) LVAP TANK - ALL ML SEALED	8.000	-4.000	2.500	.000	LREF 1297.0000 IN.
(LE1128)	△	ARE597-019C(1AB1) LVAP L-SRB - ALL ML SEALED	8.000	-4.000	2.500	.000	BREF 1297.0000 IN.
(LE1128)	◇	ARE597-019C(1AB1) LVAP R-LRB - ALL ML SEALED	8.000	-1.000	2.500	.000	YMRP 576.0000 IN. XT
(LE1128)	×	ARE597-019C(1AB1) LVAP INT VEM ALL ML SEALED	8.000	-1.000	2.500	.000	ZMRP 400.0000 IN. YT
							SCALE .0300

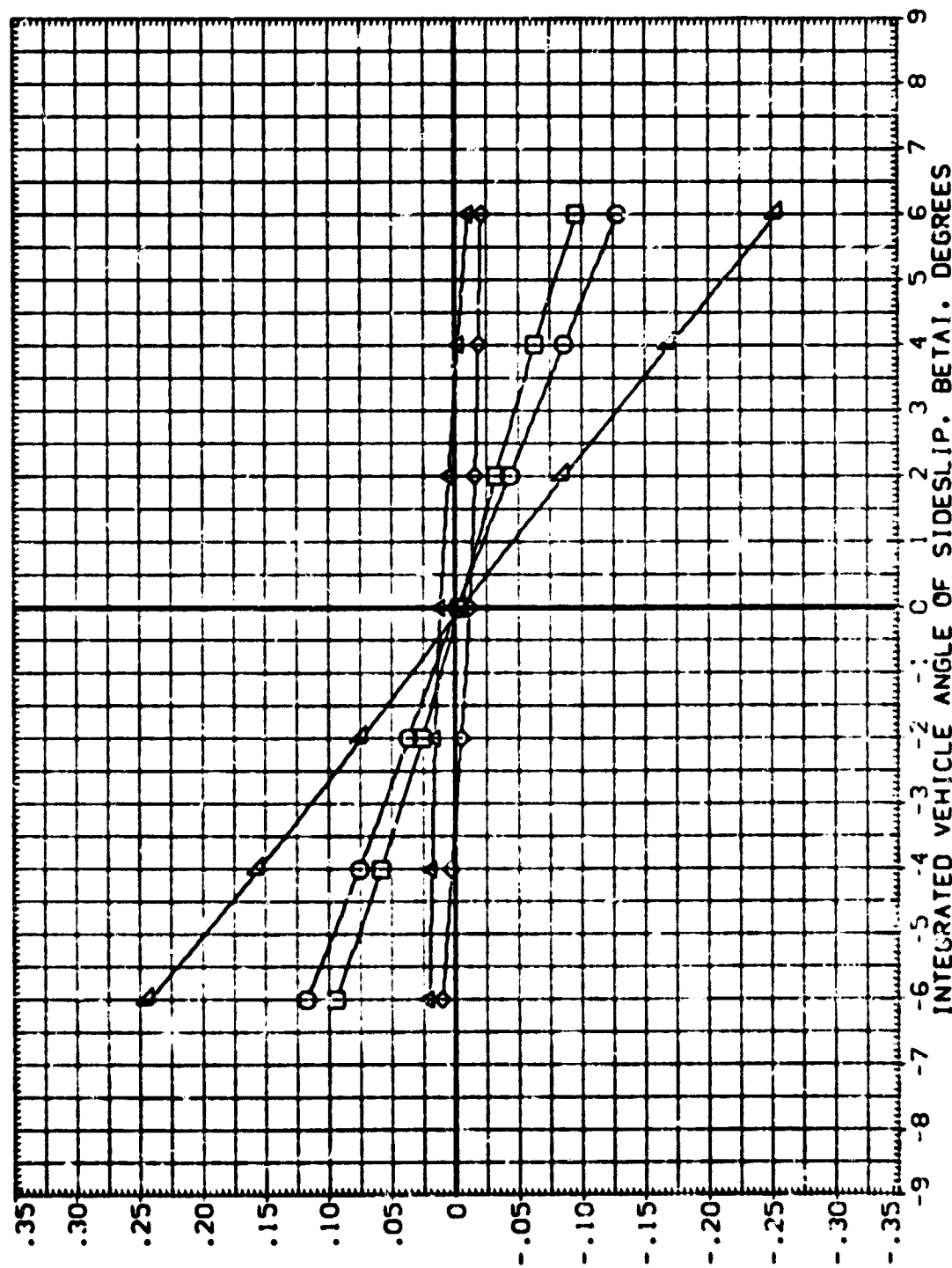


FIG. 28 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS. M=2.5 DEV=8/-4
(B) ALPHA = -4.00

DATA SET SYMBOL CONFIGURATION DESCRIPTION ELV-1B ELV-0B MACH SPDRK REFERENCE INFORMATION SD.FT.

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION	SD.FT.
(LET038)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.500	.000	SREF	2690.0000
(LET138)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.500	.000	LREF	1297.0000
(LET139)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.500	.000	BREF	1297.0000
(LET138)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.500	.000	XMRP	976.0000
(LET138)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.500	.000	YMRP	400.0000
(LET138)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.500	.000	ZMRP	400.0000
						SCALE	.0300

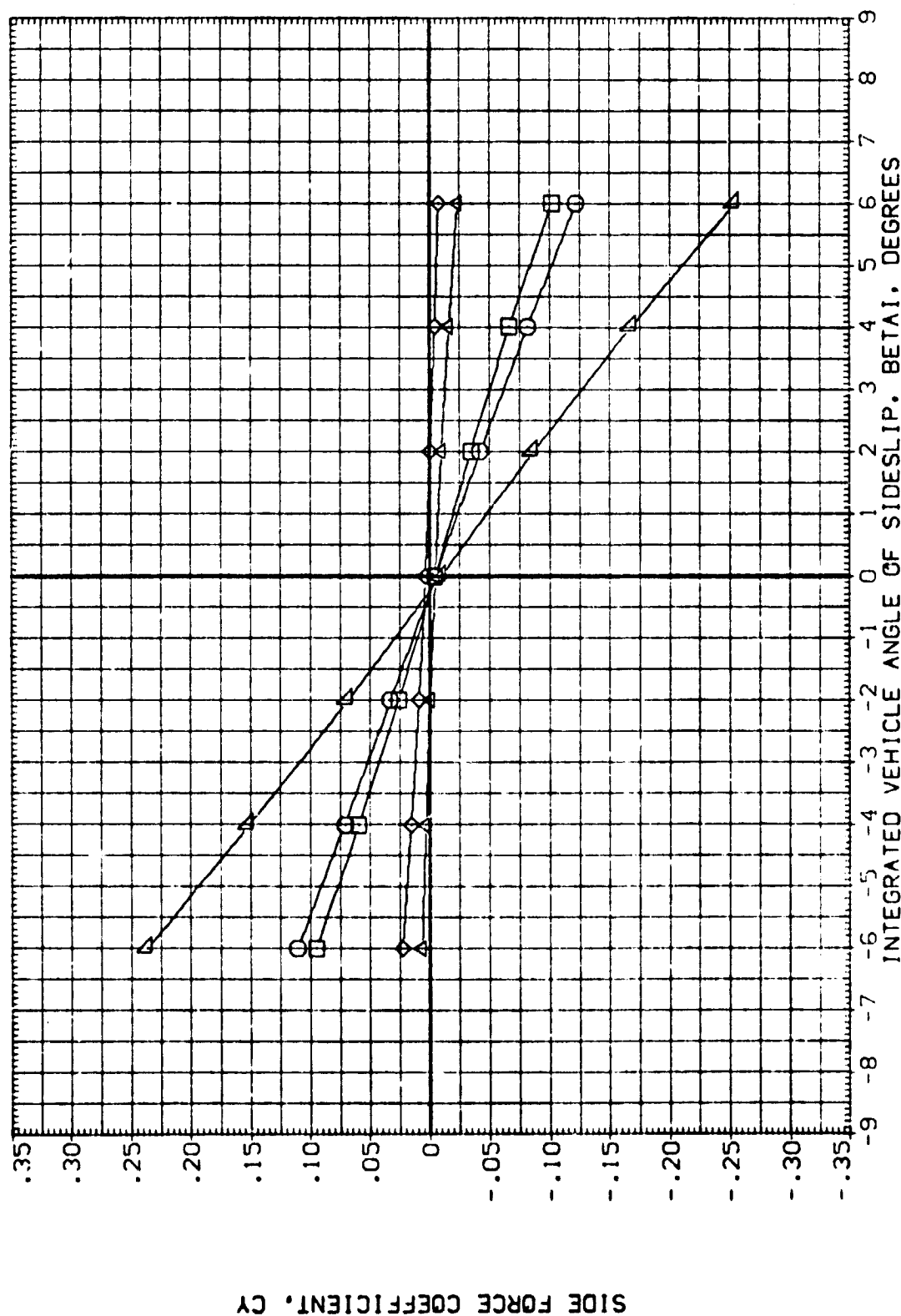


FIG. 28 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4
(C)ALPHA= -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LET038)	AMES97-019(1A81) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.500	.000	SREF 2690.0000 SQ.FT.
(LET138)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.500	.000	LREF 1297.0000 IN.
(LET138)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.500	.000	BREF 1297.0000 IN.
(LET138)	AMES97-019(1A81) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.500	.000	XMRP 976.0000 IN. XT
(LET138)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.500	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

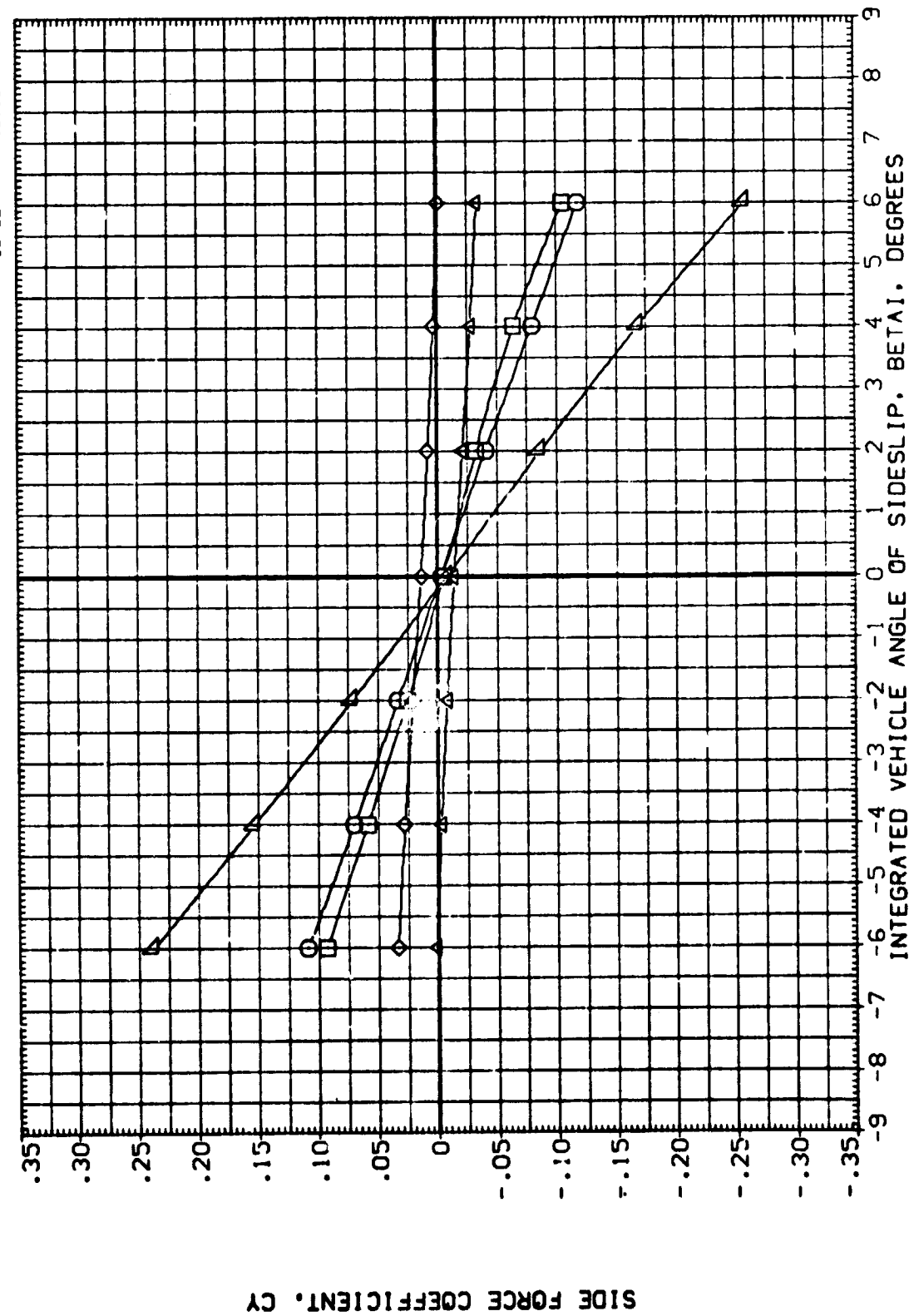


FIG. 28 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS. M=2.5 DEV=8/-4
 (O) ALPHA = .00 PAGE 691

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPOBRK	REFERENCE INFORMATION
(LETO38)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.500	.000	SREF 2690.0000 SQ.FT.
(LETL38)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.500	.000	LREF 1297.0000 IN.
(LETL39)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.500	.000	BREF 1297.0000 IN.
(LETR38)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.500	.000	YMRP 976.0000 IN. XT
(LETL38)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.500	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

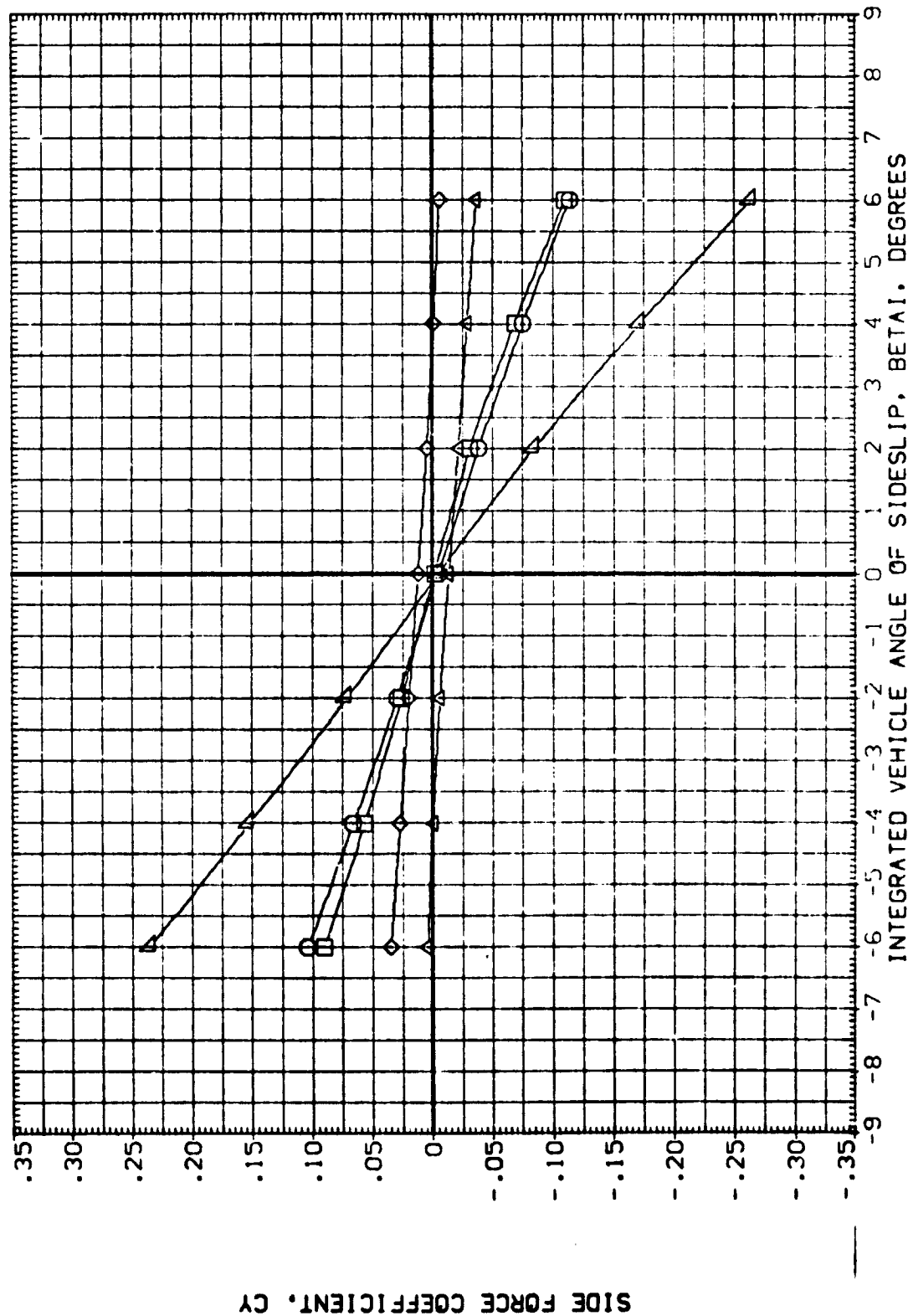


FIG. 28 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=2.5$ $DEV=8/-4$

(E)ALPHA= 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LE1038)	AME S97-019(IAB1) LVAP ORBITTER-ALL HL SEALED	8.000	-4.000	2.500	.000	SREF 2690.0000 SO.FT.
(LE1138)	AME S97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.500	.000	LREF 1297.0000 IN.
(LE1138)	AME S97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.500	.000	BREF 1297.0000 IN.
(LE1138)	AME S97-019(IAB1) LVAP R-LRB ALL HL SEALED	8.000	-4.000	2.500	.000	YMRP 976.0000 IN. XT
(LE1138)	AME S97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.500	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

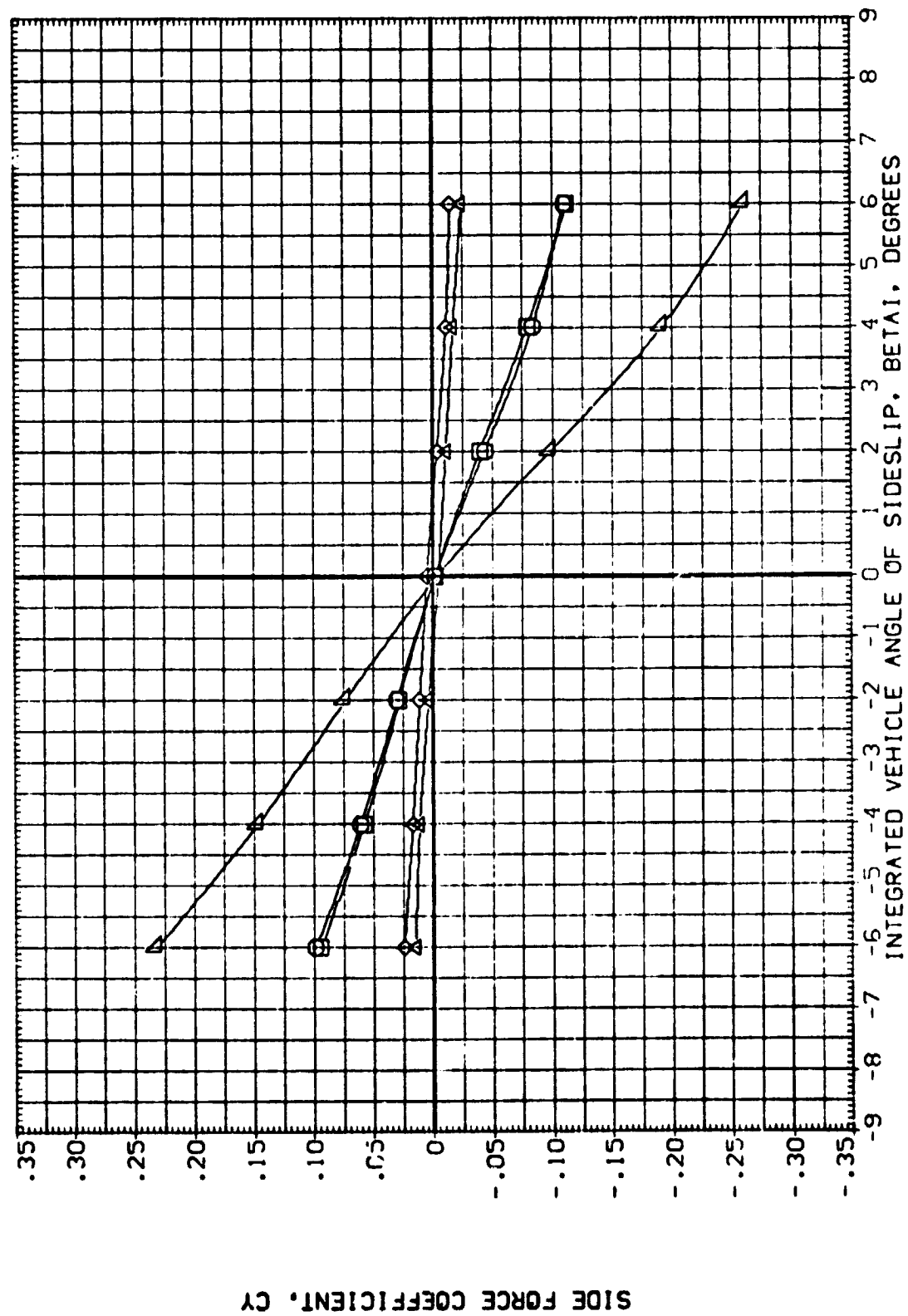


FIG. 28 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=2.5$ $DEV=8/-4$

(F)ALPHA1= 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRBK	REFERENCE INFORMATION
(LETO38)	AMES97-019C(AB1) LVAP ORBITER-ALL HL SEALED	6.000	-4.000	2.500	.000	SREF 2690.0000 SQ.FT.
(LETT38)	AMES97-019C(AB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.500	.000	LREF 1297.0000 IN.
(LETL38)	AMES97-019C(AB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.500	.000	DREF 1297.0000 IN.
(LETR38)	AMES97-019C(AB1) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.500	.000	XMRP 576.0000 IN. XT
(LETT38)	AMES97-019C(AB1) LVAP INT VEM ALL HL SEALED	8.000	-4.000	2.500	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

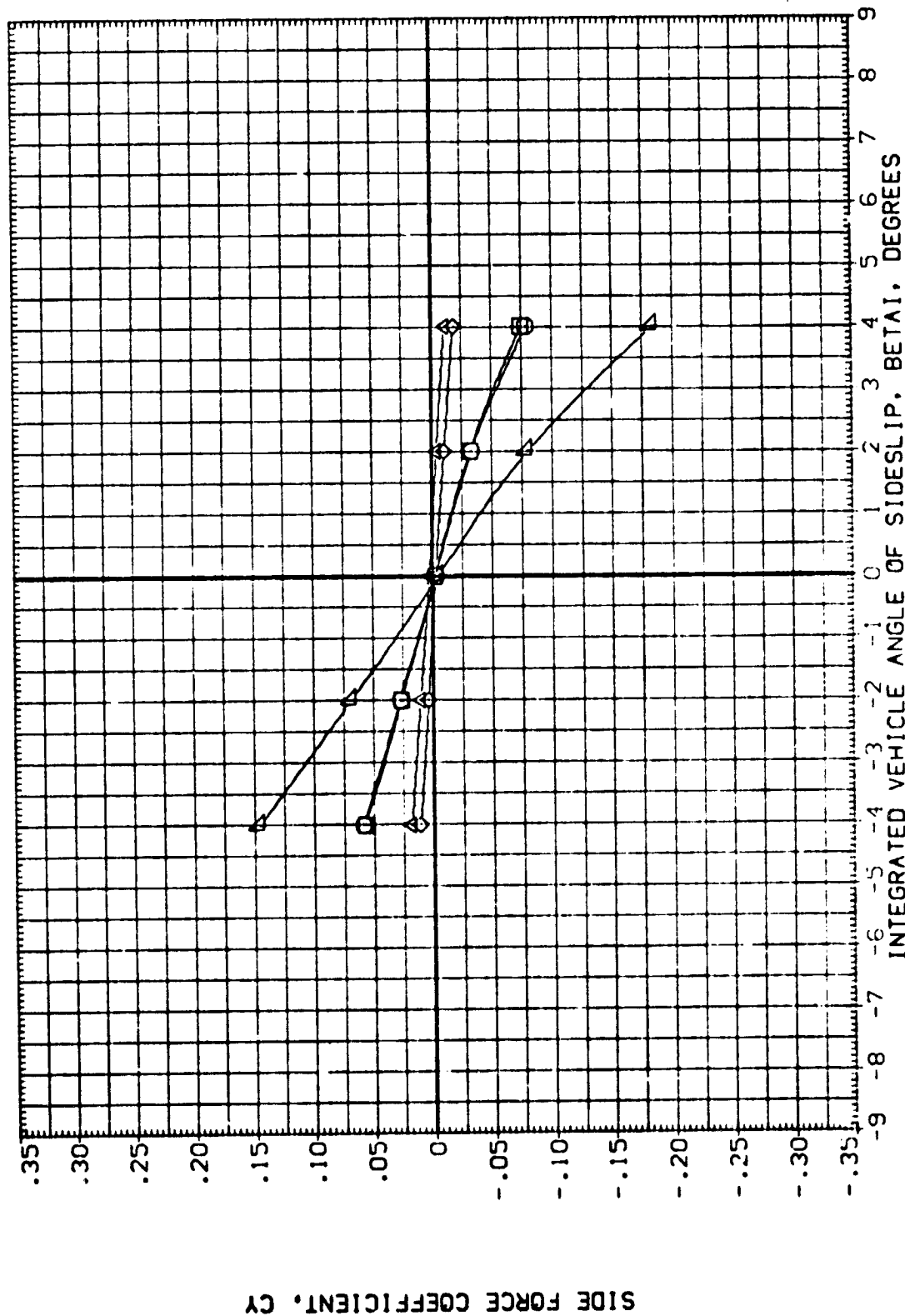


FIG. 28 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4

(G)ALPHA= 6.00

FORERBODY YAWING MOMENT COEFFICIENT, CYNF



DA	SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LETO38)	AME597-019(1A81)	LVAP CPBITER-ALL HL SEALED	8.000	-4.000	2.500	.000	SREF 2690.0000 SQ.FT.
(LETT38)	AME597-019(1A81)	LVAP TAPK - ALL HL SEALED	8.000	-4.000	2.500	.000	LREF 1297.0000 IN.
(LETT38)	AME597-019(1A81)	LVAP L-S98 - ALL HL SEALED	8.000	-4.000	2.500	.000	BREF 1297.0000 IN.
(LETT38)	AME597-019(1A81)	LVAP R-LPB ALL HL SEALED	8.000	-4.000	2.500	.000	XMRP 976.0000 IN. XT
(LETT38)	AME597-019(1A81)	LVAP INT JEM ALL HL SEALED	8.000	-4.000	2.500	.000	YMRP .0000 IN. YT
							ZMRP 400.0000 IN. ZT
							SCALE .0300

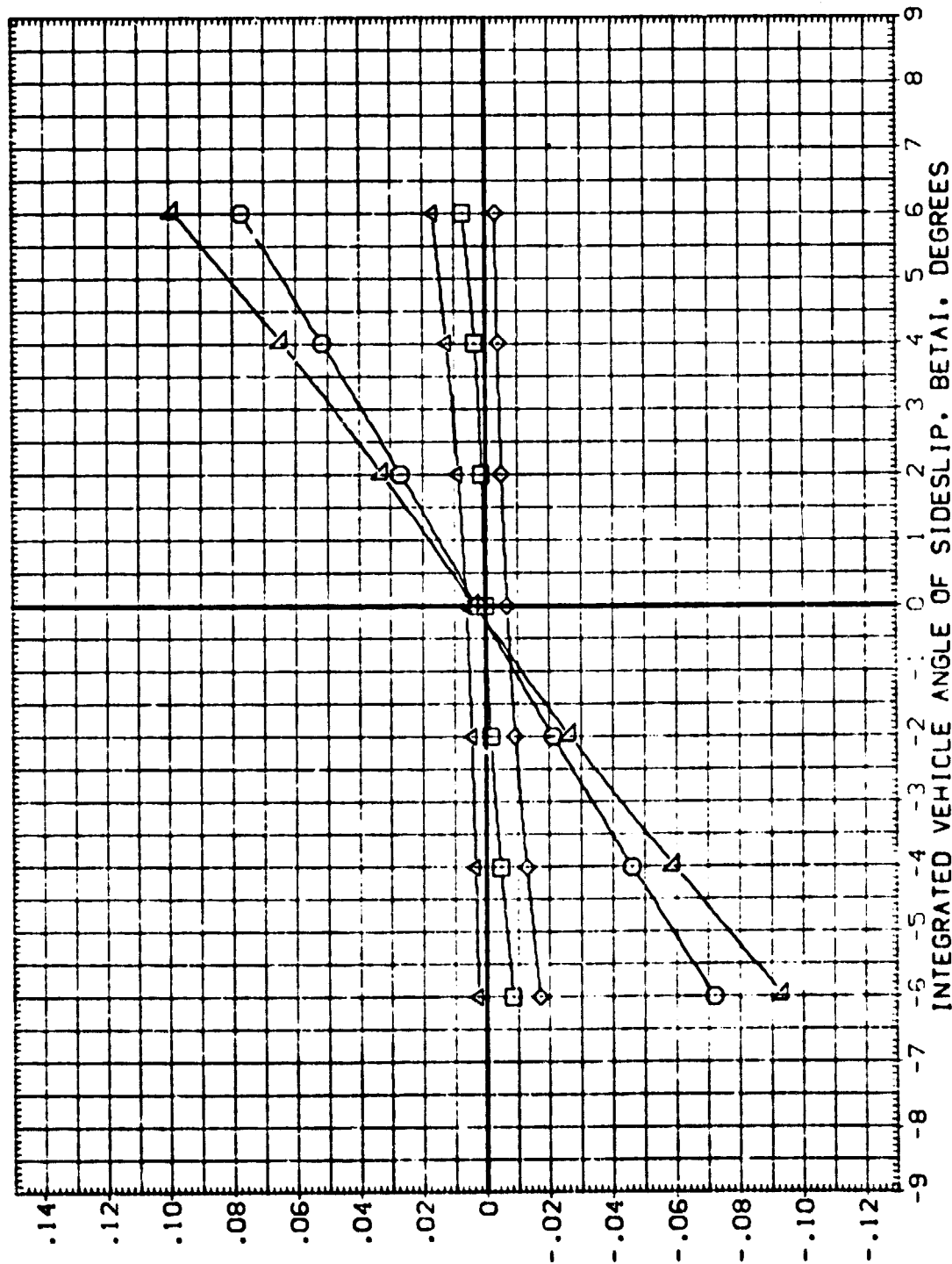


FIG. 28 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4
(C) ALPHA = -2.00

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LETO38)	□	AME597-019C(1A81) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.500	.000	SREF 2690.0000 SQ.FT.
(LETT38)	○	AME597-019C(1A81) LVAP TARP - ALL HL SEALED	8.000	-4.000	2.500	.000	LREF 1297.0000 IN.
(LETL38)	△	AME597-019C(1A81) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.500	.000	BREF 1297.0000 IN.
(LETR38)	◇	AME597-019C(1A81) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.500	.000	YMRP 976.0000 IN. XT
(LETT38)	□	AME597-019C(1A81) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.500	.000	ZMRP 400.0000 IN. ZT
							SCALE .0300

FOREBODY YAWING MOMENT COEFFICIENT, C_{YMF}

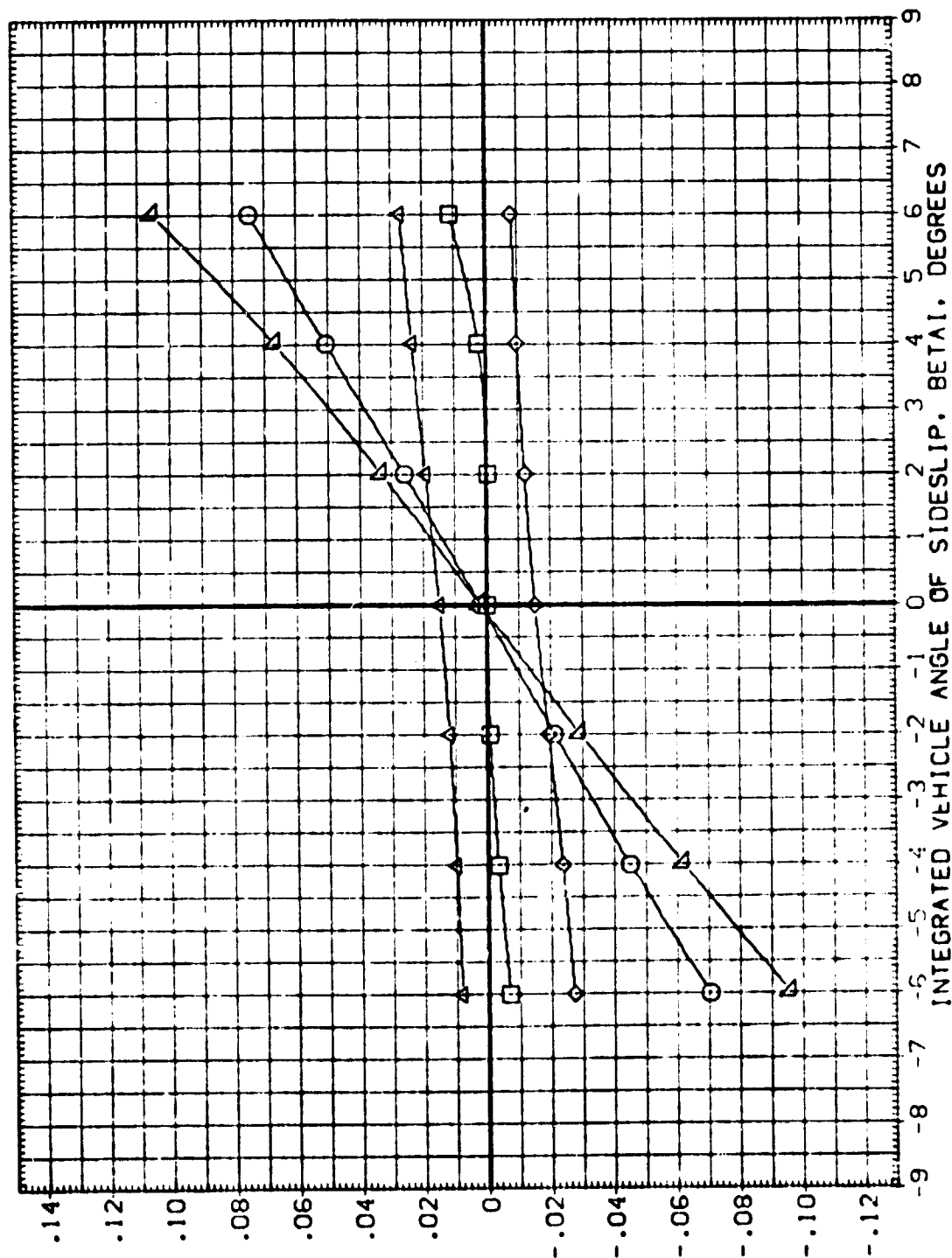


FIG. 28 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4

(D) ALPHA = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(LETT08)	AMES37-0191(P81) L/JAP CPG11ER-ALL ML SEALED	8.000	-4.000	2.500	.000	SREF 2690.0000 SO.FT.
(LETT08)	AMES37-0191(P81) L/JAP TAP - ALL ML SEALED	8.000	-4.000	2.500	.000	LREF 1297.0000 IN.
(LETT08)	AMES37-0191(P81) L/JAP L-SEB - ALL ML SEALED	8.000	-4.000	2.500	.000	BREF 1297.0000 IN.
(LETT08)	AMES37-0191(P81) L/JAP P-LOB - ALL ML SEALED	8.000	-4.000	2.500	.000	YMRP 976.0000 IN. AT
(LETT08)	AMES37-0191(P81) L/JAP INT YEM ALL ML SEALED	8.000	-4.000	2.500	.000	IN. VT
						2MRP 400.0000 IN. ZI
						SCALE .0300

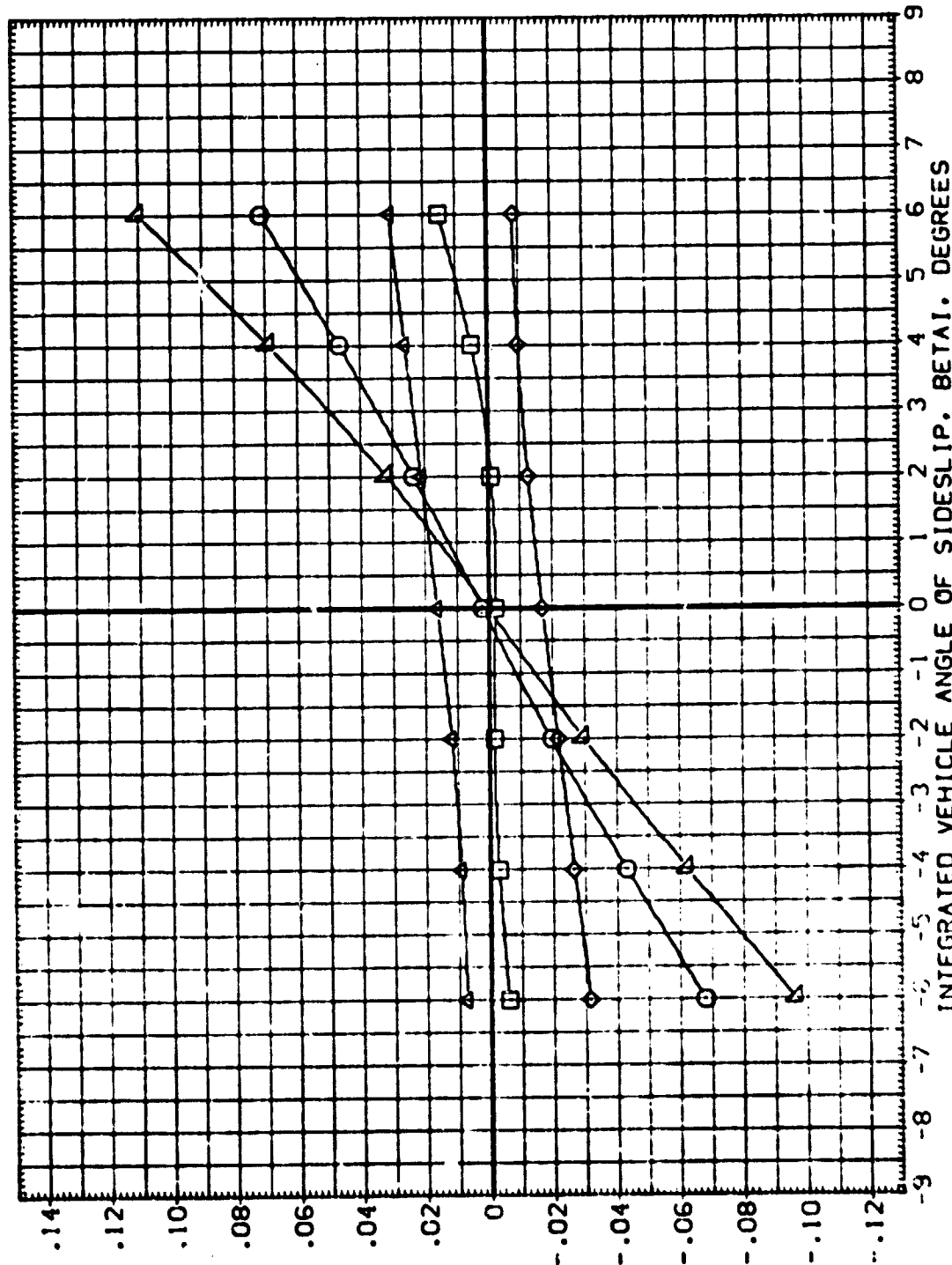


FIG. 28 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4

DATA SET SYMBOL CONFIGURATION DESCRIPTION ELV-1B ELV-CB MACH SPOBRK REFERENCE INFORMATION

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-CB	MACH	SPOBRK	REFERENCE INFORMATION
(LETO38)	AMES97-019(1A81) LVAP ORBITER-ALL ML SEALED	8.000	-4.000	2.500	.000	SREF 2690.0000 SO.FT.
(LETT38)	AMES97-019(1A81) LVAP TANK - ALL ML SEALED	8.000	-4.000	2.500	.000	LREF 1297.0000 IN.
(LETL38)	AMES97-019(1A81) LVAP L-57B - ALL ML SEALED	8.000	-4.000	2.500	.000	BREF 1297.0000 IN.
(LETR38)	AMES97-019(1A81) LVAP R-1RB ALL ML SEALED	8.000	-4.000	2.500	.000	XMRP 976.0000 IN. XT
(LETT38)	AMES97-019(1A81) LVAP INT VEH ALL ML SEALED	8.000	-4.000	2.500	.000	YMRP .0000 IN. YT
						ZMRP .0000 IN. ZT
						SCALE .0300

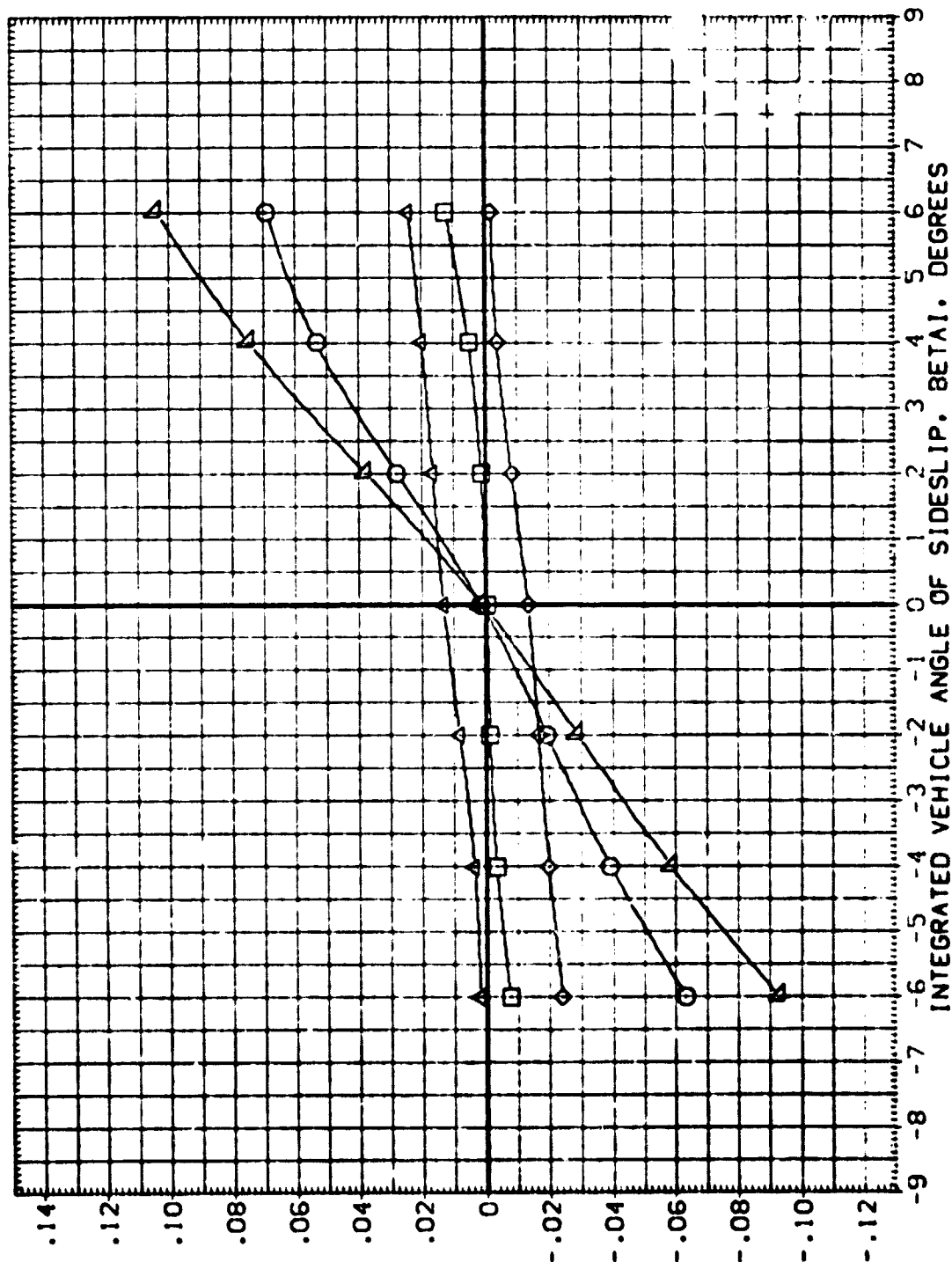


FIG. 28 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4

(F)ALPHA= 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(LE1038)	AMES97-019(1A81) LVAP CRBITTER-ALL ML SEALED	8.000	-4.000	2.500	.000	SREF 2690.0000 SO.FT. IN.
(LE1138)	AMES97-019(1A81) LVAP TAM - ALL ML SEALED	8.000	-4.000	2.500	.000	LREF 1297.0000 IN.
(LE1238)	AMES97-019(1A81) LVAP L-50B - ALL ML SEALED	9.000	-4.000	2.500	.000	BREF 1297.0000 IN. XT
(LE1338)	AMES97-019(1A81) LVAP R-LR6 ALL ML SEALED	8.000	-4.000	2.500	.000	YMRP 976.0000 IN. YT
(LE1438)	AMES97-019(1A81) LVAP INT VEH ALL ML SEALED	8.000	-4.000	2.500	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

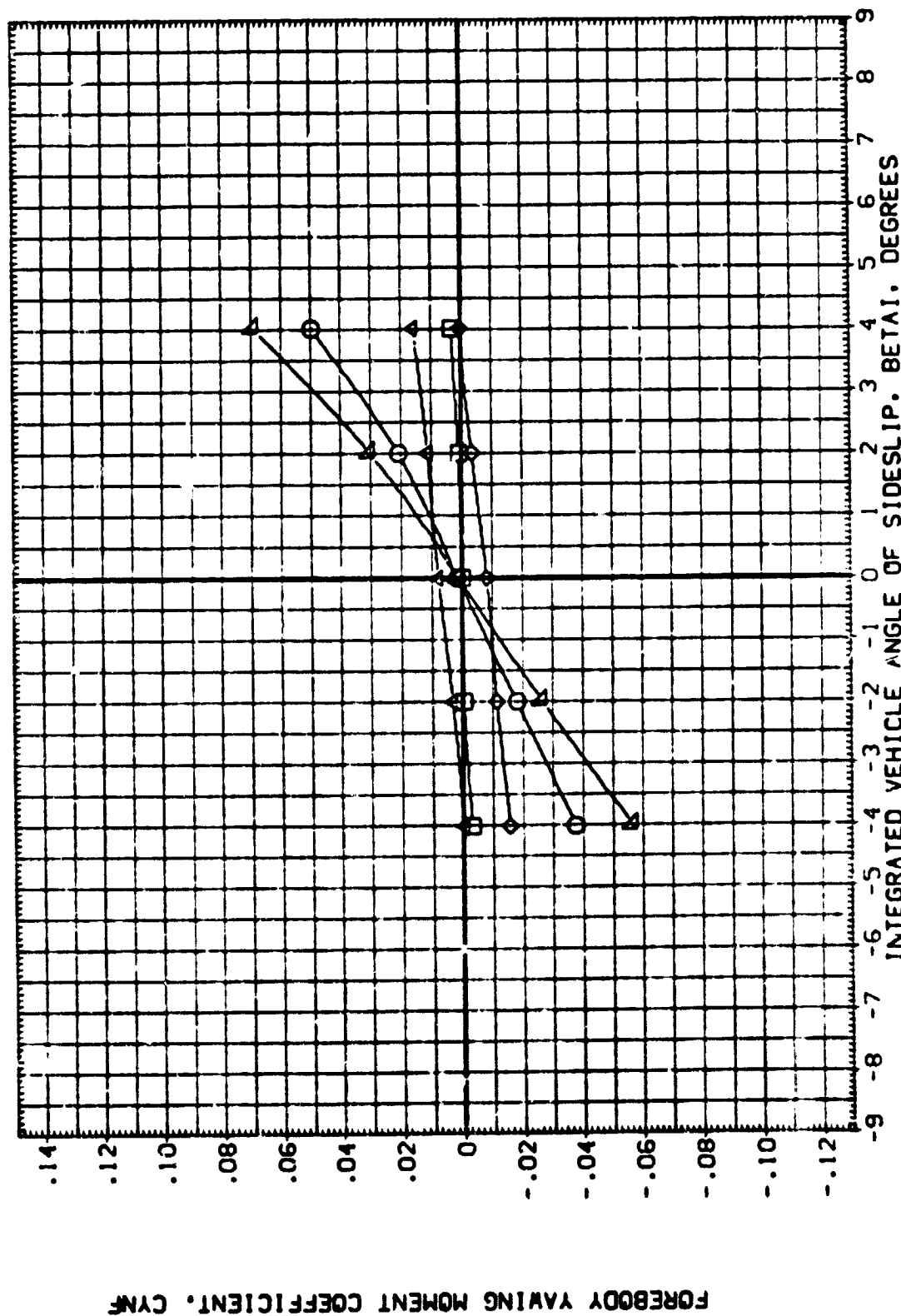


FIG. 28 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

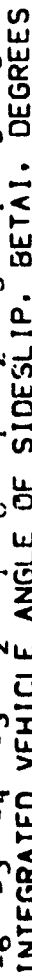


FIG. 28 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=2.5$ $NEV=8/-4$

(A)ALPHA I = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(LET138)	AME597-019(IAB1) LVAP ORBITTER-ALL HL SEALED	8.000	-4.000	2.500	.000	SREF 2690.0000 SO.FT.
(LET138)	AME597-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.500	.000	LREF 1397.0000 IN.
(LET138)	AME597-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.500	.000	BREF 1397.0000 IN.
(LET138)	AME597-019(IAB1) LVAP R-LPB ALL HL SEALED	8.000	-4.000	2.500	.000	XMRP 976.0000 IN.
(LET138)	AME597-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.500	.000	YMRP .0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

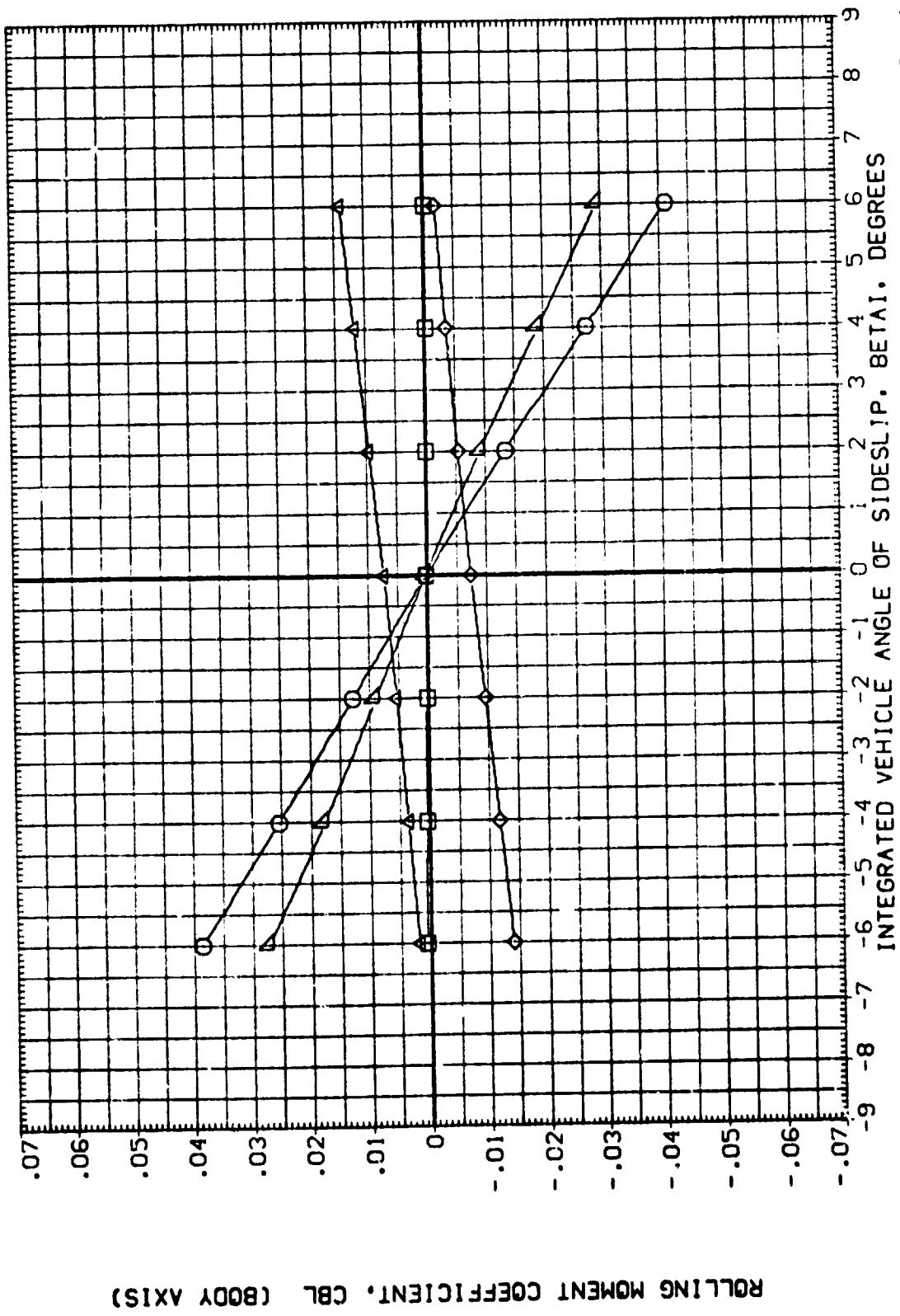


FIG. 28 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4
 (B) ALPHA = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDBRK	REFERENCE INFORMATION
(LE1038)	AMES97-019(1A81) LVAP ORBITTER-ALL HL SEALED	8.000	-4.000	2.500	.000	SREF 2690.0000 SQ.FT.
(LE1138)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.500	.000	LREF 1287.0000 IN.
(LE1139)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.500	.000	BREF 1297.0000 IN.
(LE1139)	AMES97-019(1A81) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.500	.000	XMRP 976.0000 IN.
(LE1139)	AMES97-019(1A81) LVAP INT VEH - ALL HL SEALED	8.000	-4.000	2.500	.000	YMRP .0000 IN.
(LE1138)						ZMRP 400.0000 IN.
						SCALE .0300

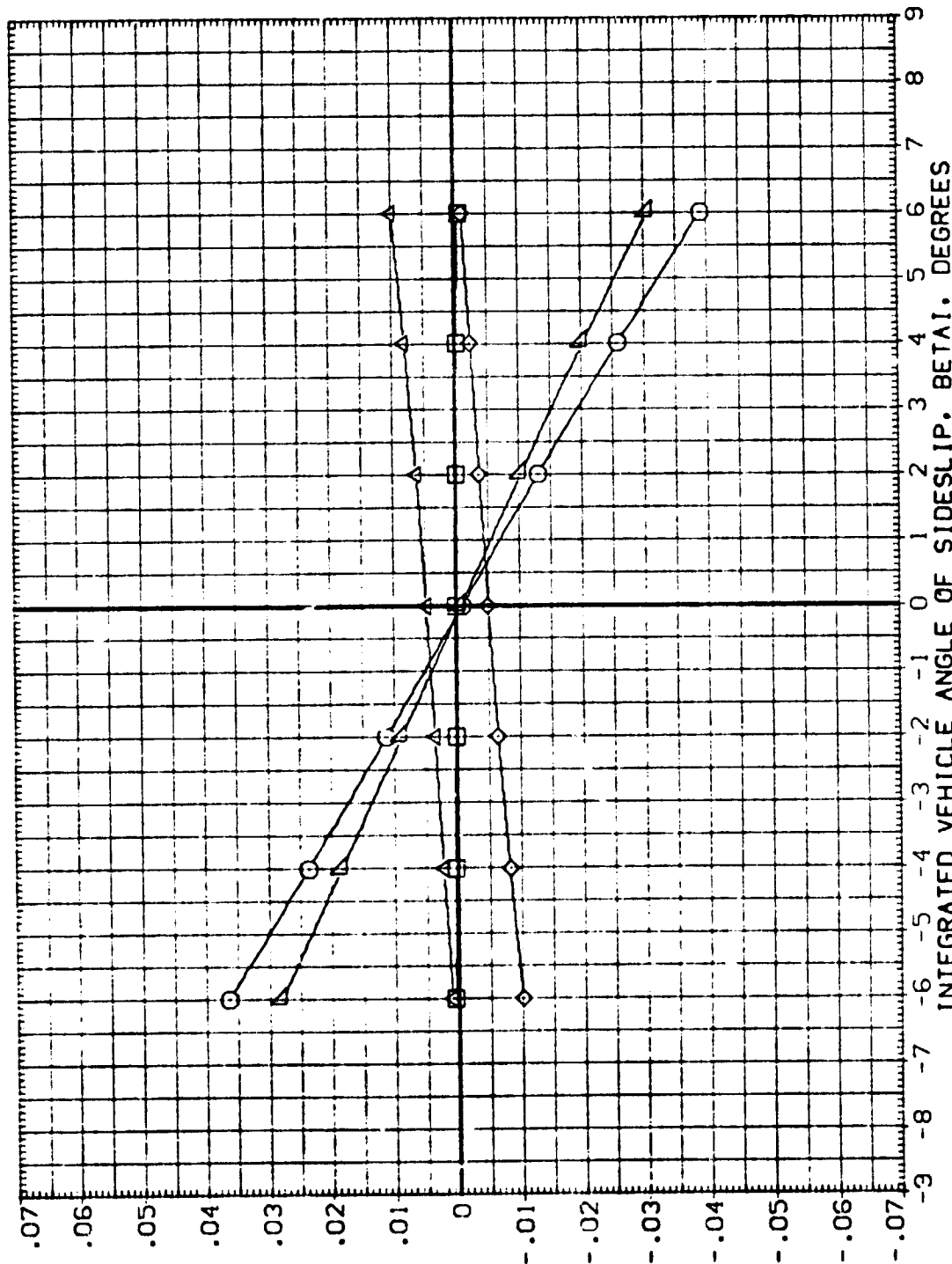


FIG. 28 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4

(C)ALPIA1= -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPD8RK	REFERENCE INFORMATION
(LE1038)	AMES97-019(IAB1) LVAP ORBITTER-ALL HL SEALED	8.000	-4.000	2.500	.000	SREF 2890.0000 SQ.FT.
(LE1138)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.500	.000	LREF 1297.0000 IN.
(LE1138)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.500	.000	BREF 1297.0000 IN.
(LE1138)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.500	.000	XMRP 976.0000 IN.
(LE1138)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.500	.000	YMRP .0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

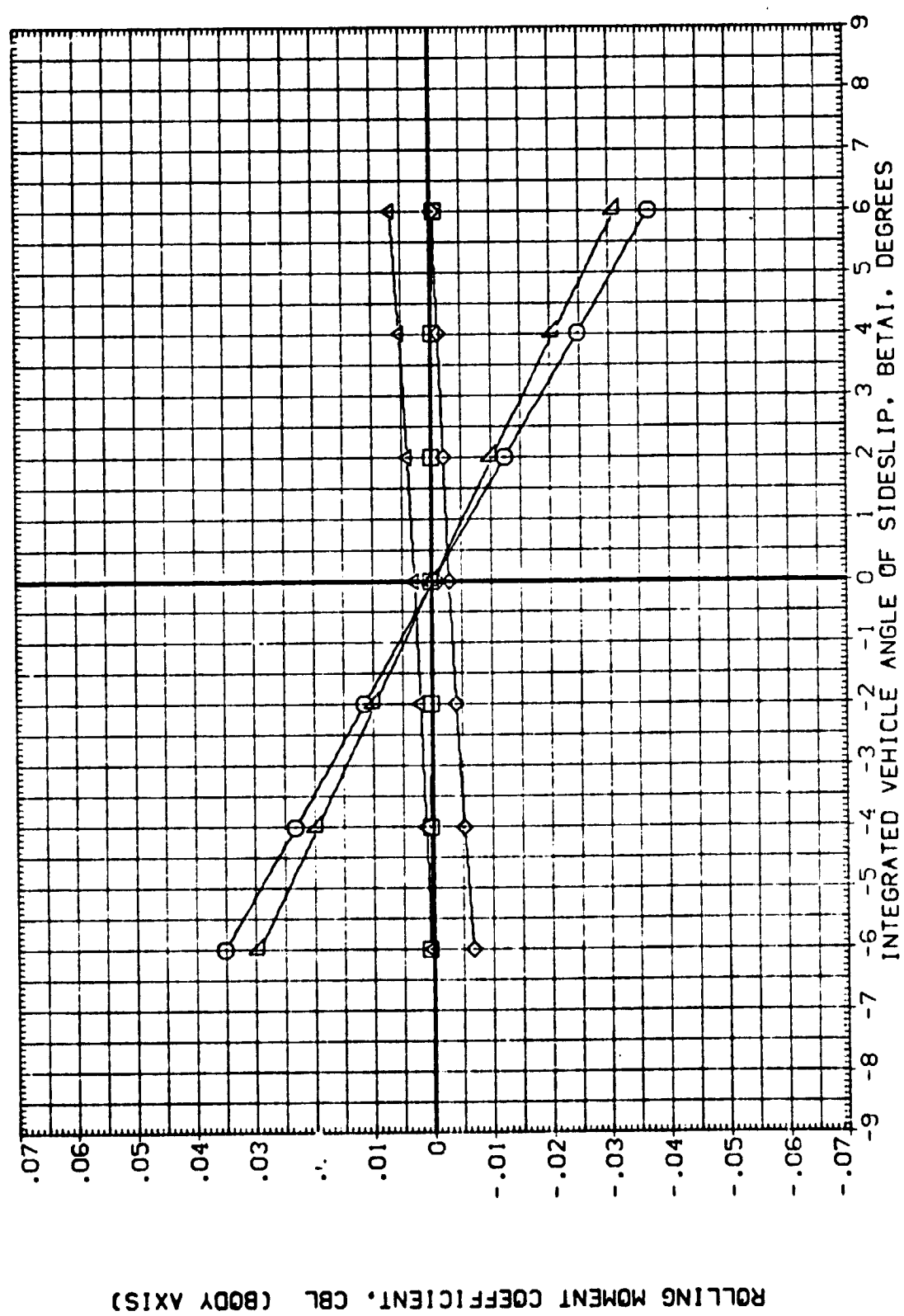
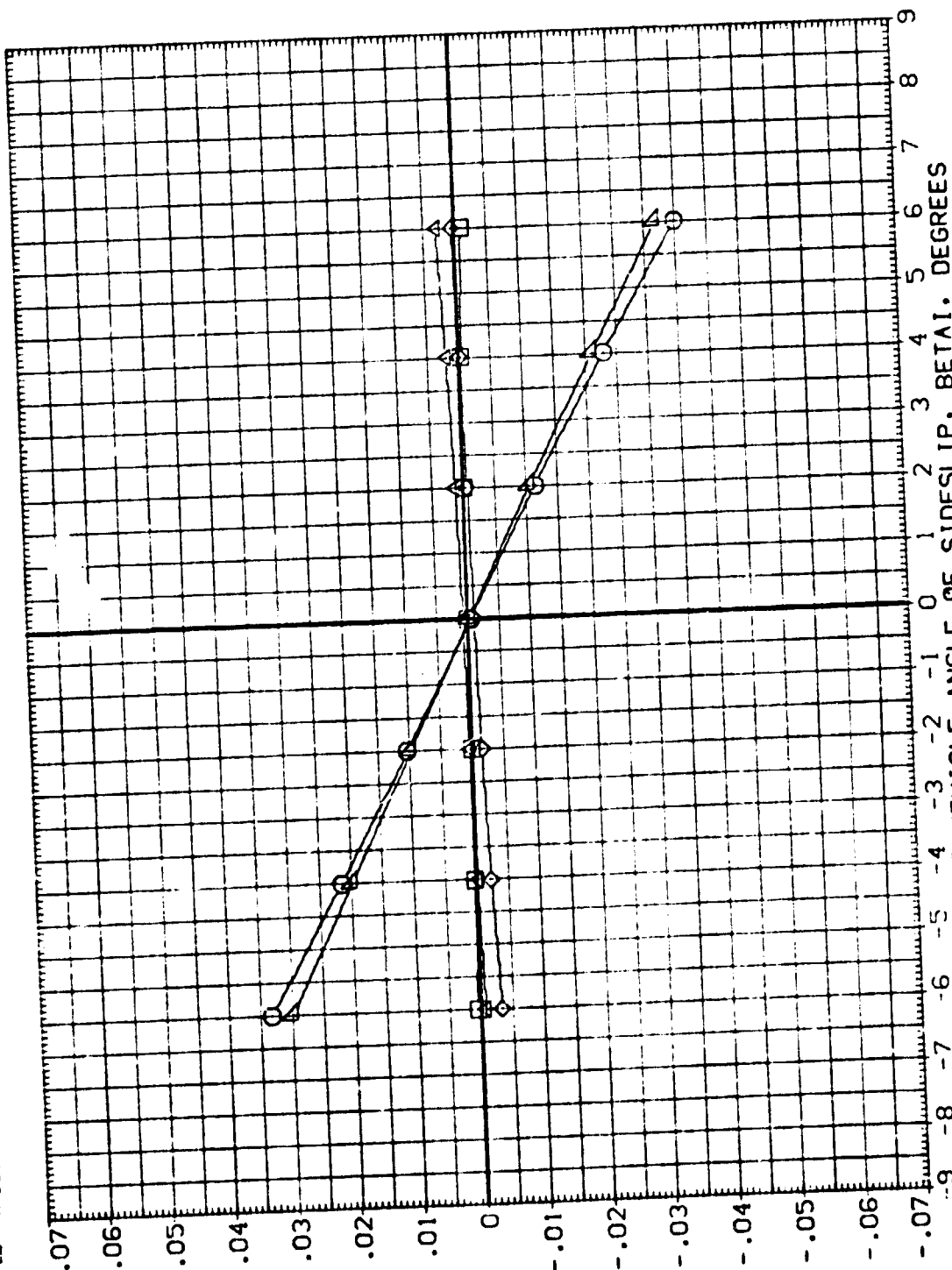


FIG. 28 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4
 (COALPHA)= .00 PAGE 705

DATA SET SYMBOL
(LE1038)
(LE1138)
(LE1238)
(LE1338)
(LE1438)

CONFIGURATION DESCRIPTION
AMES97-019(IAB1) L VAP ORBITTER-ALL HL SEALED
AMES97-019(IAB1) L VAP TANK - ALL HL SEALED
AMES97-019(IAB1) L VAP L-SRB - ALL HL SEALED
AMES97-019(IAB1) L VAP R-LRB ALL HL SEALED
AMES97-019(IAB1) L VAP INT VEH ALL HL SEALED

ELV-18 ELV-08 MACH SPD BRK REFERENCE INFORMATION
8.000 -4.000 2.500 .000 SREF 2690.0000 SQ.FT.
8.000 -4.000 2.500 .000 LREF 1297.0000 IN.
8.000 -4.000 2.500 .000 BREF 1297.0000 IN.
8.000 -4.000 2.500 .000 YMRP 976.0000 IN.
8.000 -4.000 2.500 .000 ZMRP 400.0000 IN.
8.000 -4.000 2.500 .000 SCALE .0300



ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

FIG. 28 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4
(E)ALPHA= 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LE1038)	AMES97-C19(1A81) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.500	.000	SREF 2690.0000 SQ.FT.
(LE1138)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.500	.000	LREF 1297.0000 IN.
(LE1238)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.500	.000	BREF 1297.0000 IN.
(LE1338)	AMES97-019(1A81) LVAP R-LRB ALL HL SEALED	8.000	-4.000	2.500	.000	XMRP 976.0000 IN. XT
(LE1438)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.500	.000	YMRP .0000 IN. YT
(LE1538)						ZMRP 400.0000 IN. ZT
						SCALE .0300

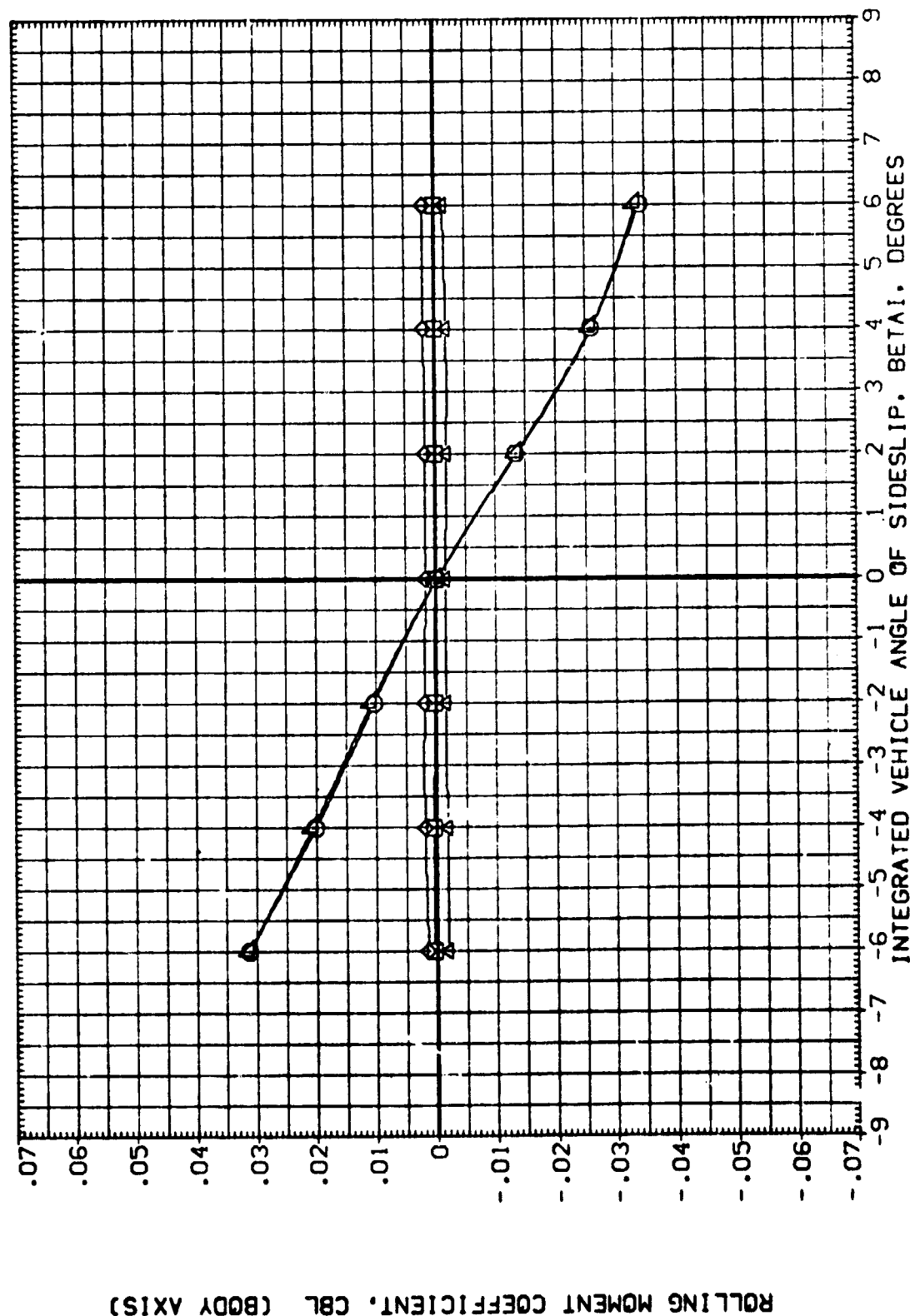
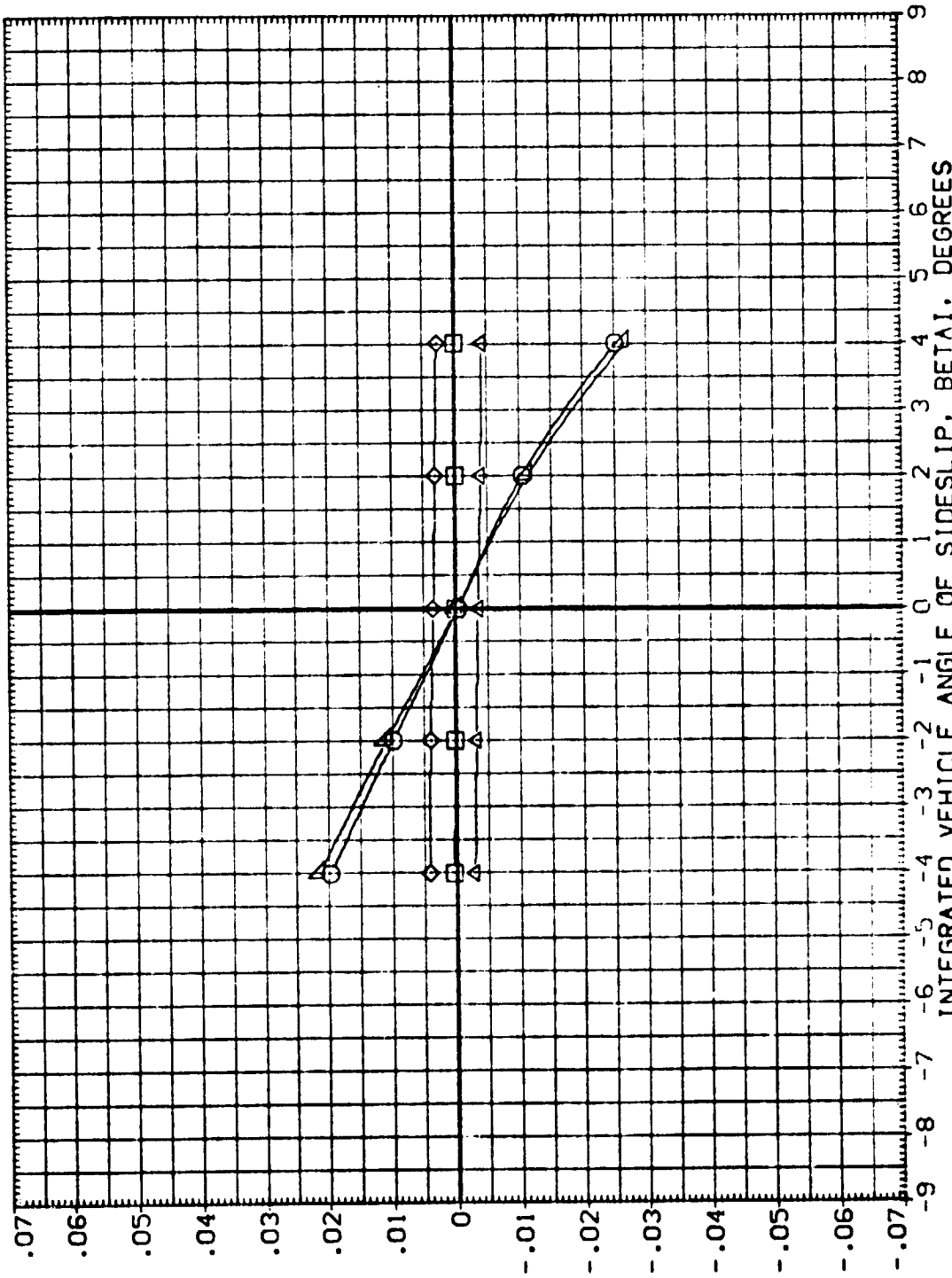


FIG. 28 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4

(F) ALPHA = 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPCSRK	REFERENCE INFORMATION
(LE1038)	AMES97-019(1A81) LVAP CRB:TER-ALL HL SEALED	8.000	-4.000	2.500	.000	SREF 2690.0000 SQ.FT.
(LE1138)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.500	.000	LREF 1297.0000 IN.
(LE1135)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.500	.000	BREF 1297.0000 IN.
(LE1R38)	AMES97-019(1A81) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.500	.000	XMRP 976.0000 IN. XT
(LE1'38)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.500	.000	YMRP 400.0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300



ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

FIG. 28 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4
(G)ALPHA= 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LE1038)	AME597-019(1A81) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.500	.000	SREF 2690.0000 SQ.FT.
(LE1138)	AME597-019(1A81) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.500	.000	LREF 1297.0000 IN.
(LE1L38)	AME597-019(1A81) LVAP L-SPB - ALL HL SEALED	8.000	-4.000	2.500	.000	BREF 1297.0000 IN.
(LE1R38)	AME597-019(1A81) LVAP R-LRB - ALL HL SEALED	8.000	-4.000	2.500	.000	XPRP 976.0000 IN.
(LE1138)	AME597-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.500	.000	YPRP 400.0000 IN.
						ZPRP 400.0000 IN.
						SCALE .0300

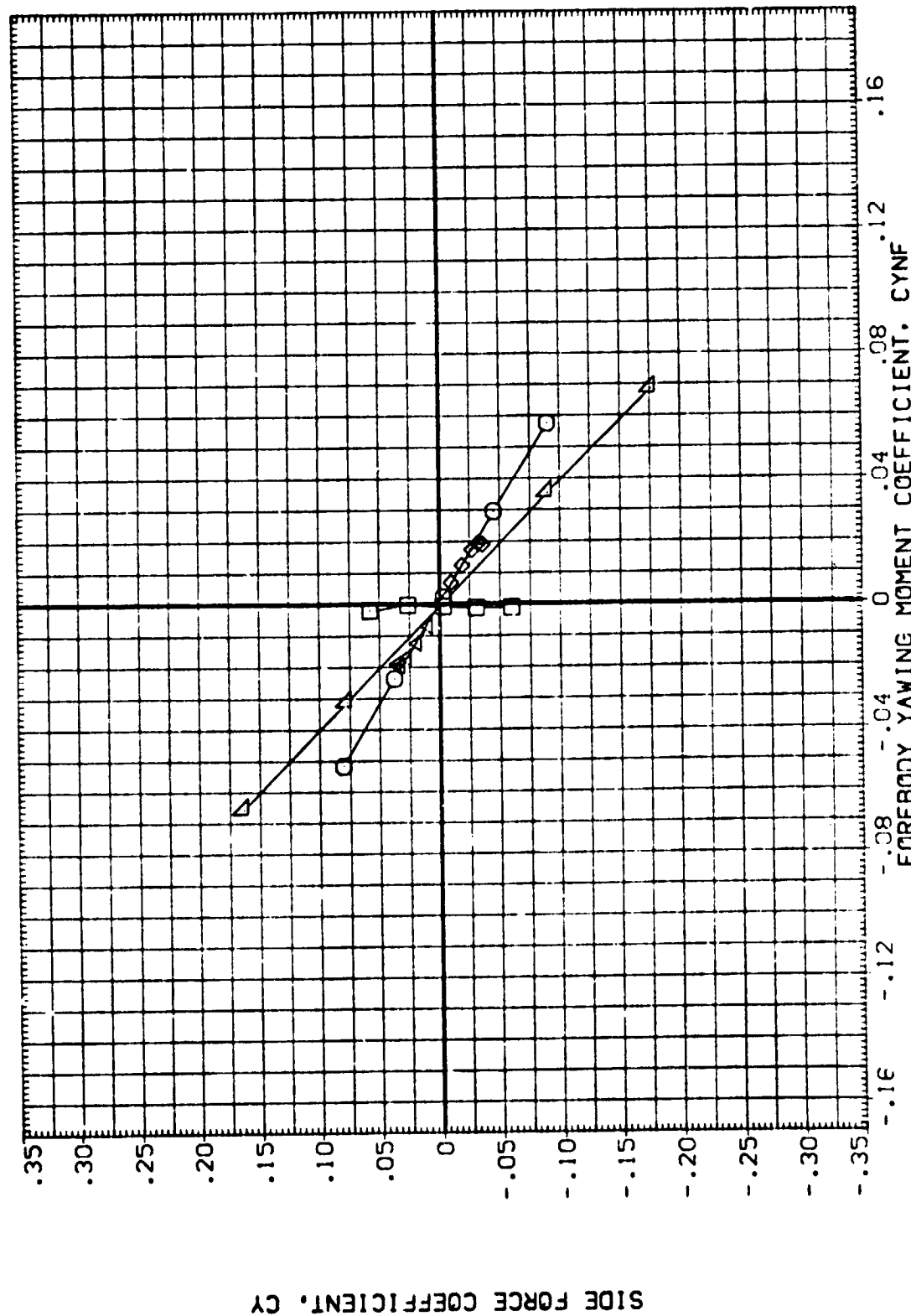


FIG. 28 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS. M=2.5 DEV=8/-4
(A) ALPHA = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(LETO38)	AMES97-019(1A81) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.500	.000	SREF 2690.0000 SQ.FT.
(LETT38)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.500	.000	LREF 1297.0000 IN.
(LETL38)	AMES97-019(1A81) LVAP L-SPB - ALL HL SEALED	8.000	-4.000	2.500	.000	BREF 1297.0000 IN.
(LETR38)	AMES97-019(1A81) LVAP R-LRB ALL HL SEALED	8.000	-4.000	2.500	.000	XMRP 976.0000 IN. XT
(LETT38)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.500	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

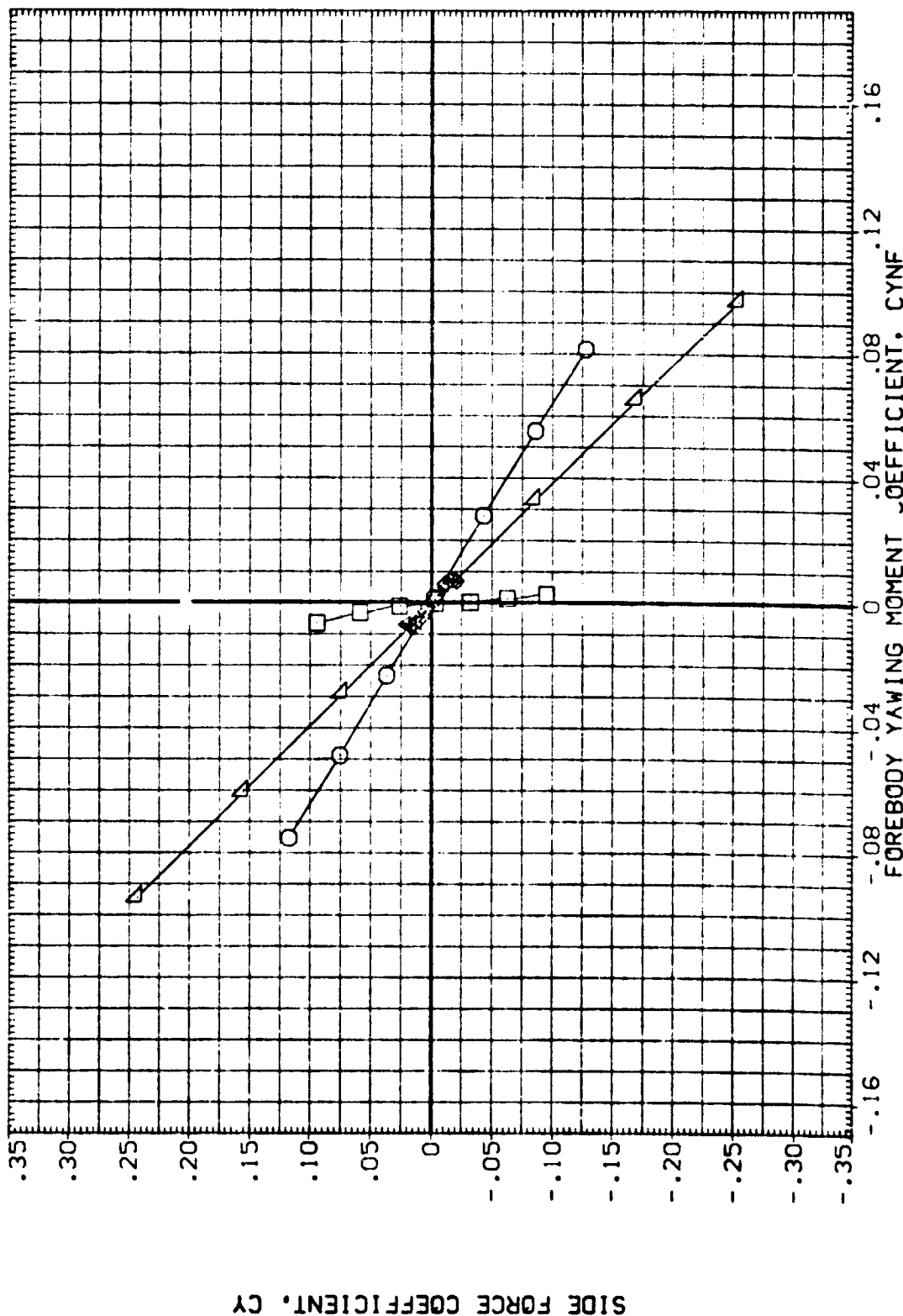


FIG. 28 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4

(B) ALPHA = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDRK	REFERENCE INFORMATION
(LE1038)	AMES97-019(1A81) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.500	.000	SREF 2690.0000 SQ.FT.
(LE1138)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.500	.000	LREF 1297.0000 IN.
(LE1238)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.500	.000	BREF 1297.0000 IN.
(LE1338)	AMES97-019(1A81) LVAP R-LPB ALL HL SEALED	8.000	-4.000	2.500	.000	YMRP 976.0000 IN.
(LE1438)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.500	.000	ZMRP 400.0000 IN.
						SCALE .0300

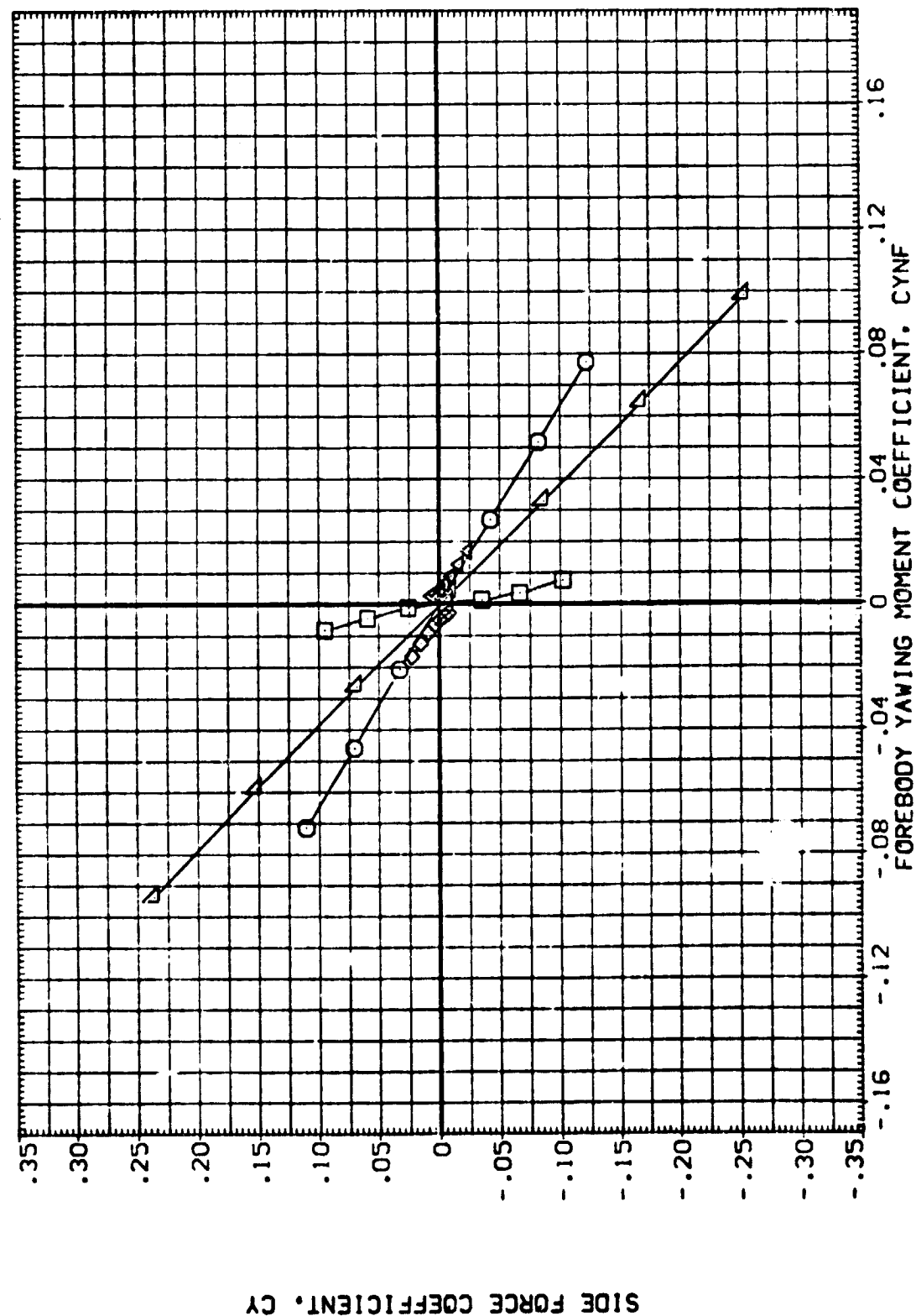


FIG. 28 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4

(C)ALPHA= -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-CB	MACH	SPCGRV	REFERENCE INFORMATION
(LET136)	AMES97-019(IAB1) LVAP ORBITER-ALL ML SEALED	8.000	-4.000	2.500	.000	SREF 2690.0000 SQ.FT.
(LET136)	AMES97-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	-4.000	2.500	.000	LREF 1297.0000 IN.
(LET136)	AMES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	8.000	-4.000	2.500	.000	BREF 1297.0000 IN.
(LET136)	AMES97-019(IAB1) LVAP R-LRP - ALL ML SEALED	8.000	-4.000	2.500	.000	XMRP 976.0000 IN.
(LET136)	AMES97-019(IAB1) LVAP INT VEH ALL ML SEALED	8.000	-4.000	2.500	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0310

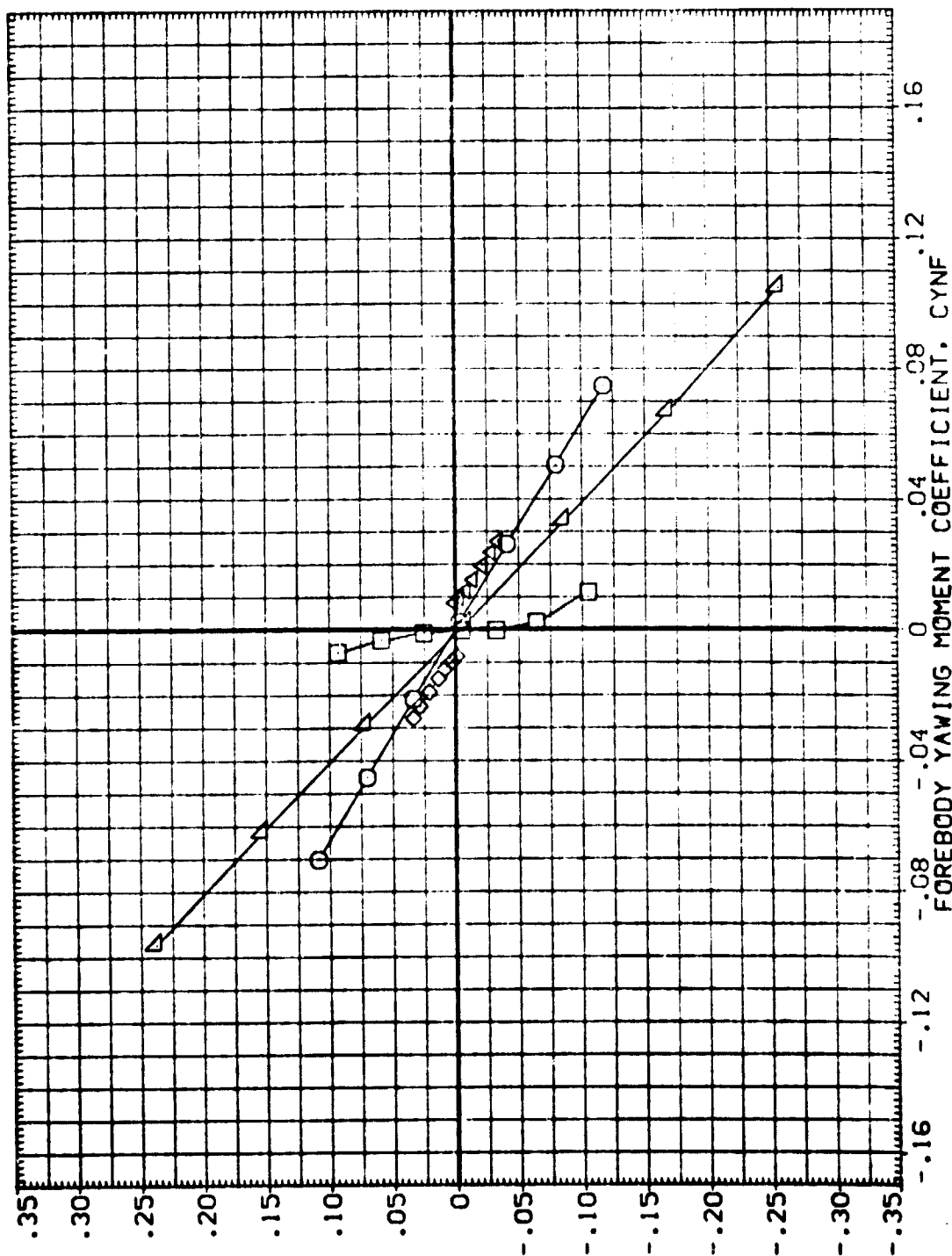


FIG. 28 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4
(D) ALPHA = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LETOB)	AMES97-019(1A81) LVAP ORBITER-ALL ML SEALED	8.000	-4.000	2.500	.000	SREF 2690.0000 SO.FT.
(LETT0B)	AMES97-019(1A81) LVAP TANK - ALL ML SEALED	8.000	-4.000	2.500	.000	LREF 1297.0000 IN.
(LETT0B)	AMES97-019(1A81) LVAP L-SRB - ALL ML SEALED	8.000	-4.000	2.500	.000	BREF 1297.0000 IN.
(LETT0B)	AMES97-019(1A81) LVAP R-LRB - ALL ML SEALED	8.000	-4.000	2.500	.000	YMRP 400.0000 IN. XT
(LETT0B)	AMES97-019(1A81) LVAP INT VEH ALL ML SEALED	8.000	-4.000	2.500	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

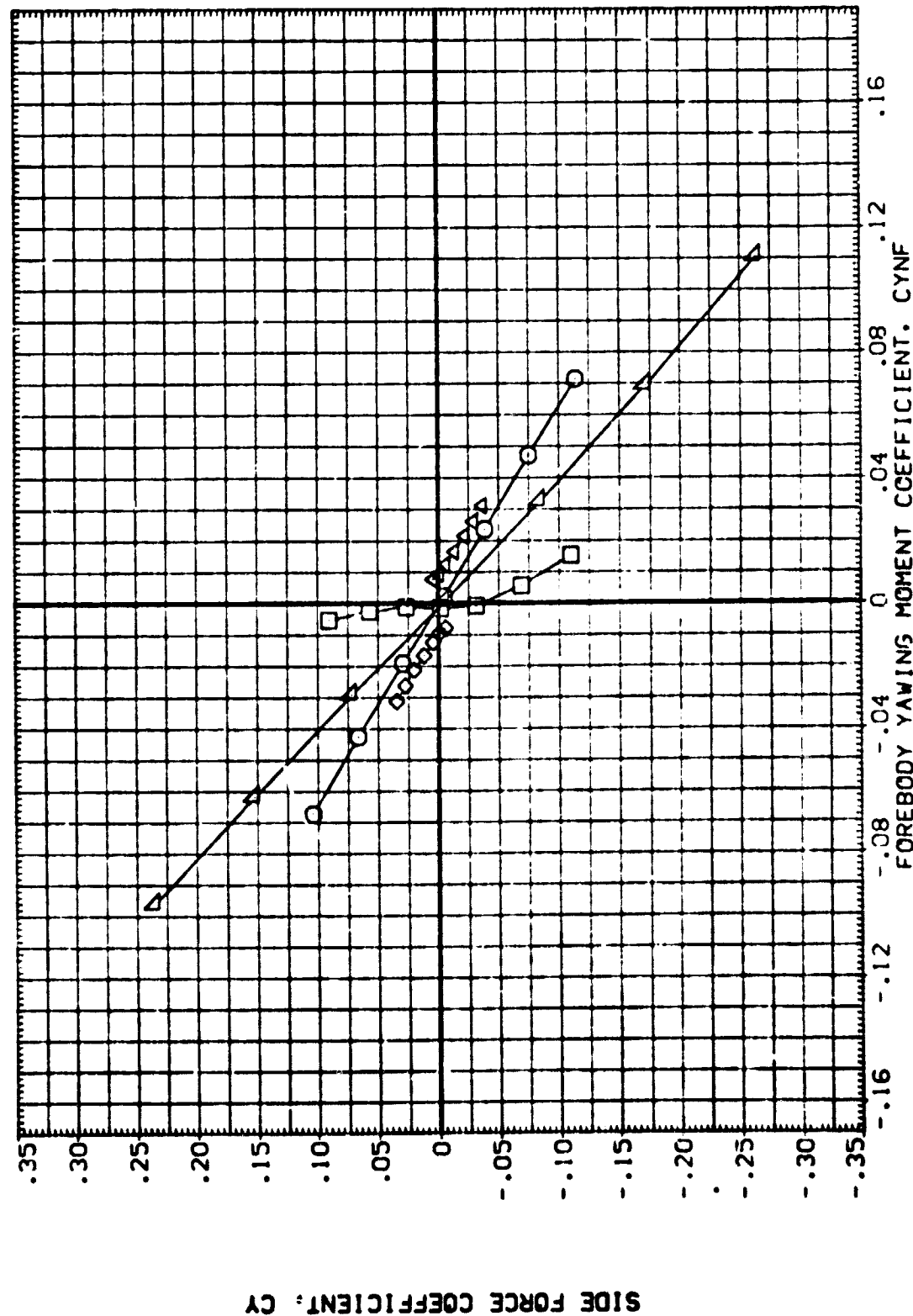


FIG. 28 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4

	CONFIGURATION	DESCRIPTION
	AMES97-019(1A81)	LVAP
	TAPB1	
	AMES97-019(1A81)	LVAP
	AMES97-019(1A81)	LVAP
	L-55	
	R-LRB	
	AMES97-019(1A81)	LVAP
	INT VEB	
	AMES97-019(1A81)	LVAP

TER-ALL ML SEALED
K - ALL ML SEALED
B - ALL ML SEALED
M ALL ML SEALED

ELV-19	ELV-CB	MACH	SPOBRK	REFERENCE	UNLIMITED	SQ.FT.
6.000	-4.000	2.500	.000	SREF	2650	.0000
8.000	-4.000	2.500	.000	LREF	1297	.0000
8.000	-4.000	2.500	.000	BREF	1297	.0000
8.000	-4.000	2.500	.000	XMRP	976	.0000
8.000	-4.000	2.500	.000	YMRP	.0000	.0000
3.000	-4.000	2.500	.000	ZMRP	400	.0000
				SCALE	.0300	

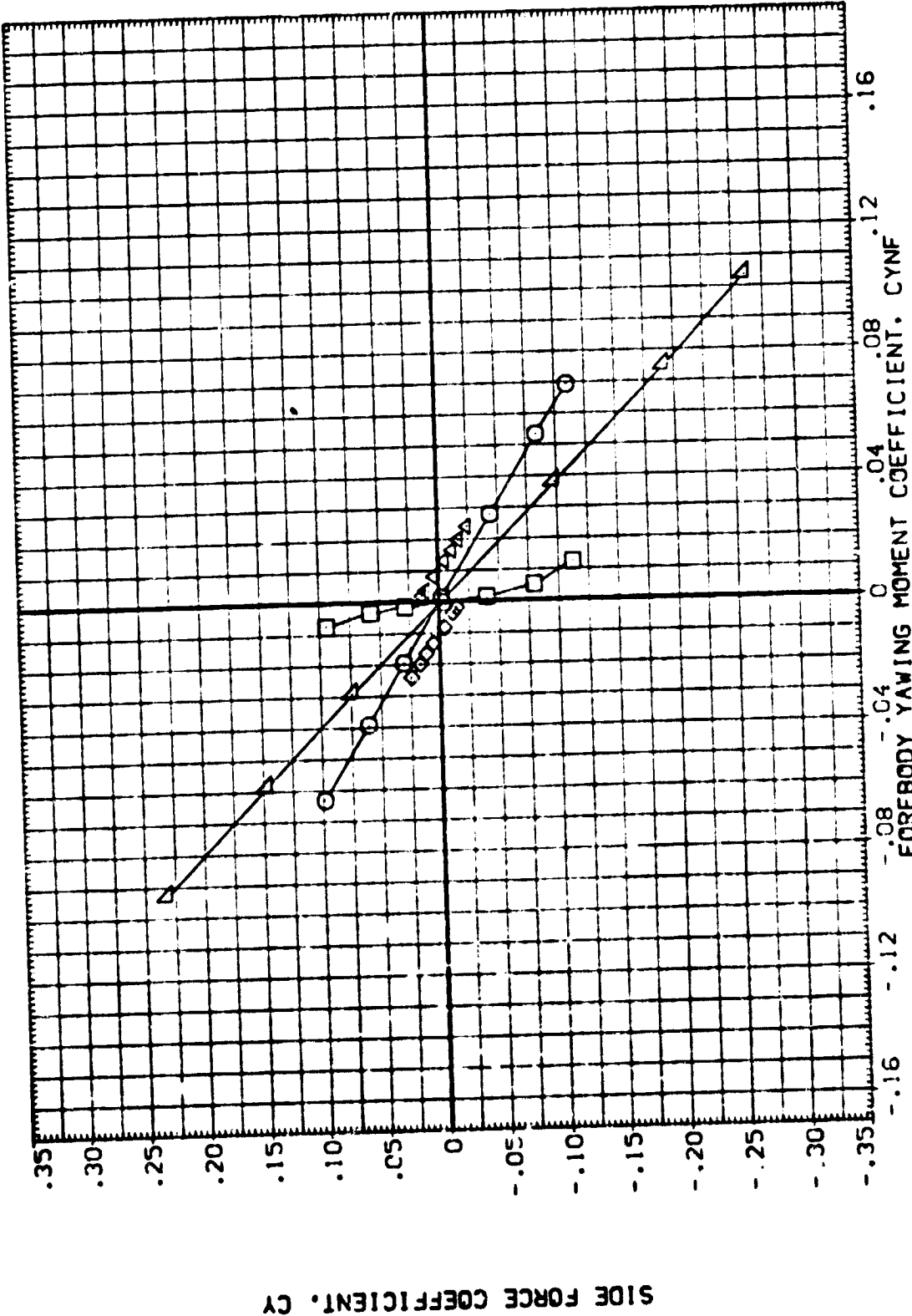


FIG. 28 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, $M=2.5$ $DEV=8/-4$
(F)ALPHA= 4.00 PAGE 714

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	FLV-08	MACH	SPDBRK	REFERENCE INFORMATION
(LET028)	AMES97-019(IAB1) LVAP ORBITER-ALL ML SEALED	8.000	-4.000	2.500	.000	SREF 2690.0000 SO.FT.
(LET138)	AMES97-019(IAB1) LVAP TANK - ALL ML SEALED	8.000	-4.000	2.500	.000	LREF 1297.0000 IN.
(LET138)	AMES97-019(IAB1) LVAP L-SPB - ALL ML SEALED	8.000	-4.000	2.500	.000	BREF 1297.0000 IN.
(LET138)	AMES97-019(IAB1) LVAP R-LRB - ALL ML SEALED	8.000	-4.000	2.500	.000	YMRP 976.0000 IN. XT
(LET138)	AMES97-019(IAB1) LVAP INT VEH - ALL ML SEALED	8.000	-4.000	2.500	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

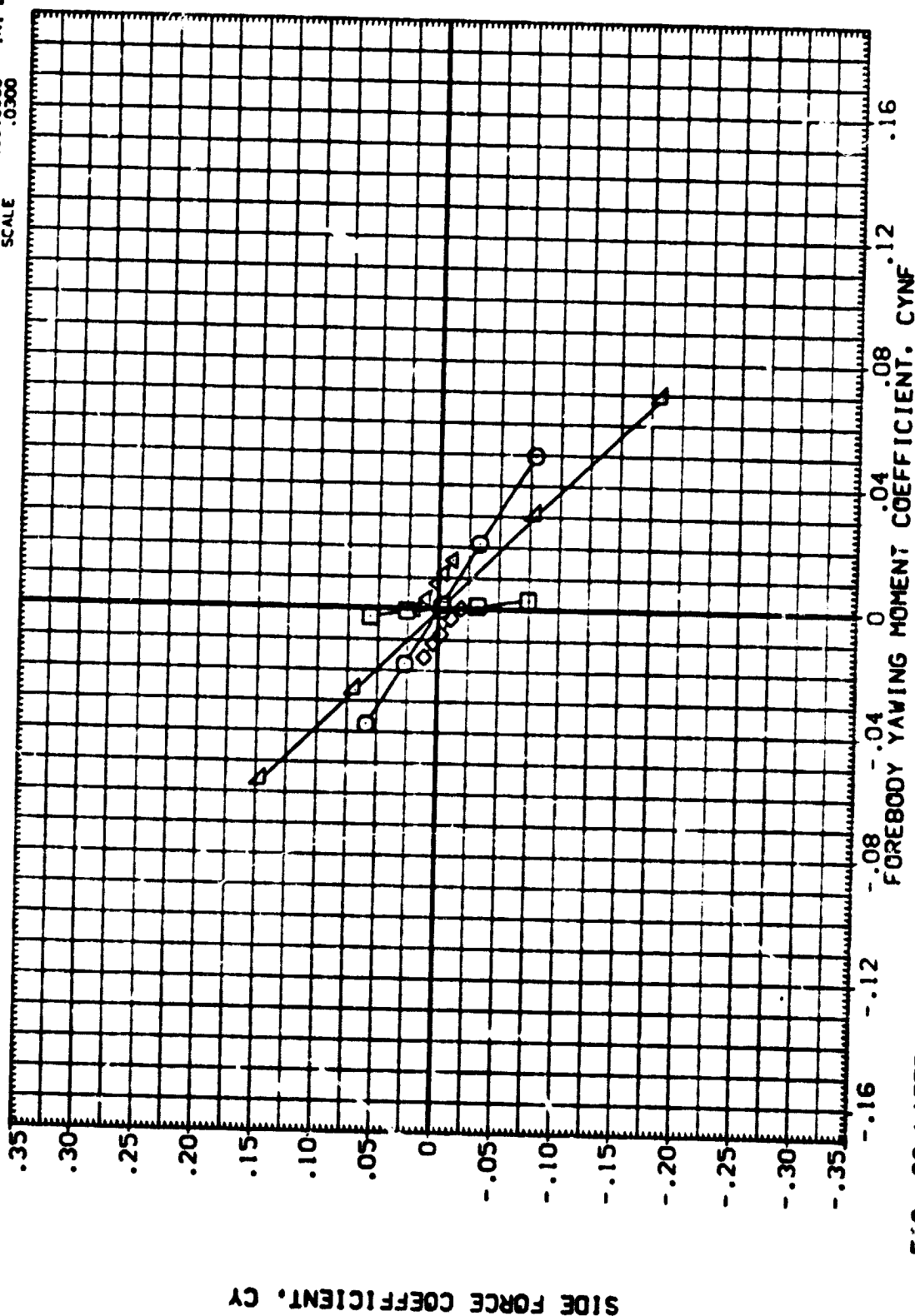


FIG. 28 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4
(G) ALPHA= 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-C8	MACH	SPDRK	REFERENCE INFORMATION
(LET08)	ANE597-019C(AB1) LVAP DRBITER-ALL ML SEALED	8.000	-4.000	2.500	.000	SREF 2690.0000 SQ.FT.
(LET12)	ANE597-019C(AB1) LVAP TARM - ALL ML SEALED	8.000	-4.000	2.500	.000	LREF 1297.0000 IN.
(LET18)	ANE597-019C(AB1) LVAP L-SRB - ALL ML SEALED	8.000	-4.000	2.500	.000	BREF 1297.0000 IN.
(LET22)	ANE597-019C(AB1) LVAP R-LRB ALL ML SEALED	8.000	-4.000	2.500	.000	XMRP 976.0000 IN. XT
(LET28)	ANE597-019C(AB1) LVAP INT VEN ALL ML SEALED	8.000	-4.000	2.500	.000	YMRP 400.0000 IN. YT
(LET32)						ZMRP 400.0000 IN. ZT
						SCALE .0300

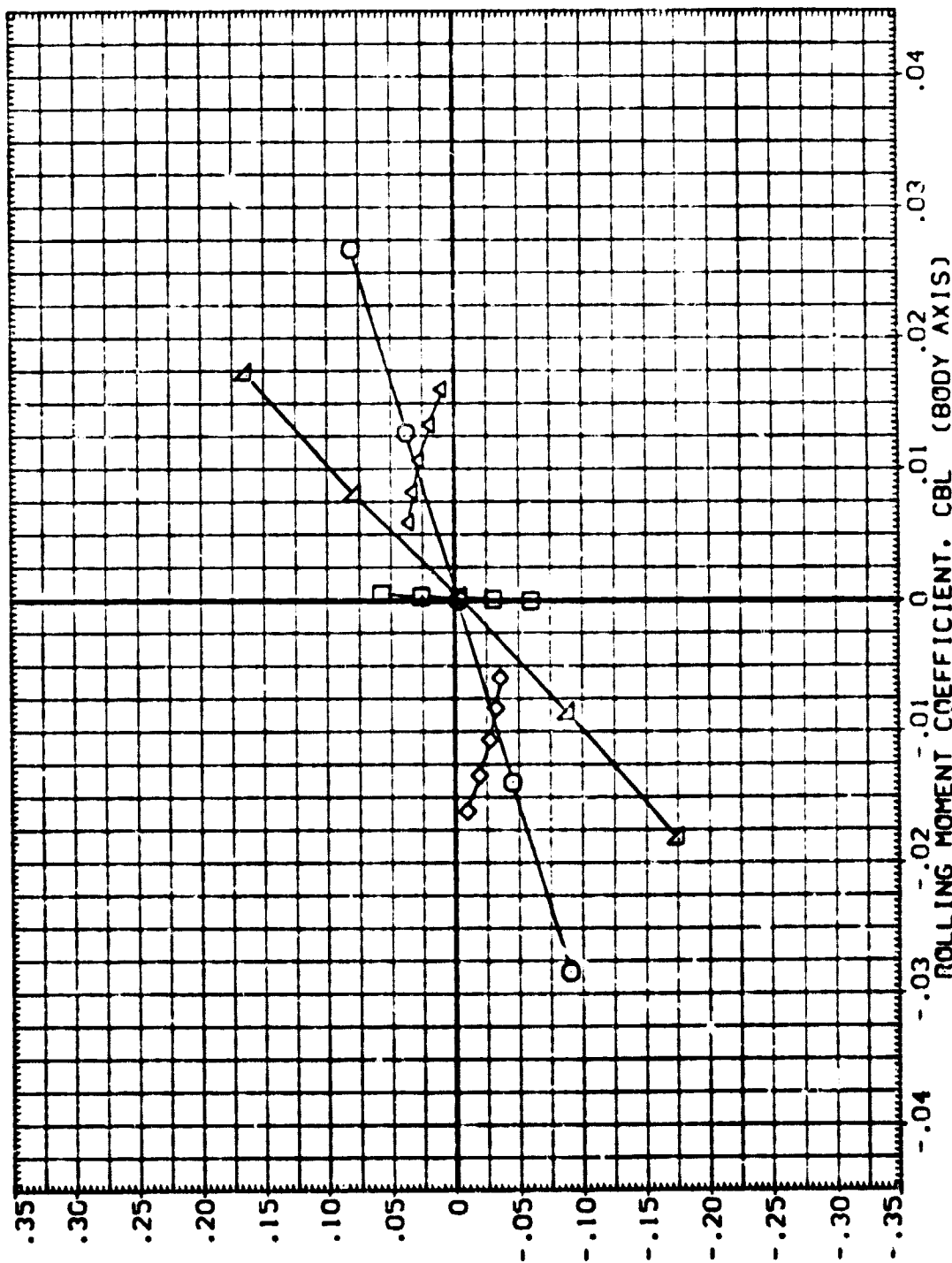


FIG. 28 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4

(A) ALPHA = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LE1038)	AMES97-019(IAB1) LVAP CRBITTER-ALL HL SEALED	8.000	-4.000	2.500	.000	SREF 2690.0000 SQ.FT.
(LE1138)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.500	.000	LREF 1297.0000 IN.
(LE1139)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.500	.000	BREF 1297.0000 IN.
(LE1138)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	8.000	-4.000	2.500	.000	XMRP 976.0000 IN. YI
(LE1138)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.500	.000	ZMRP 400.0000 IN. ZI
						SCALE .0300

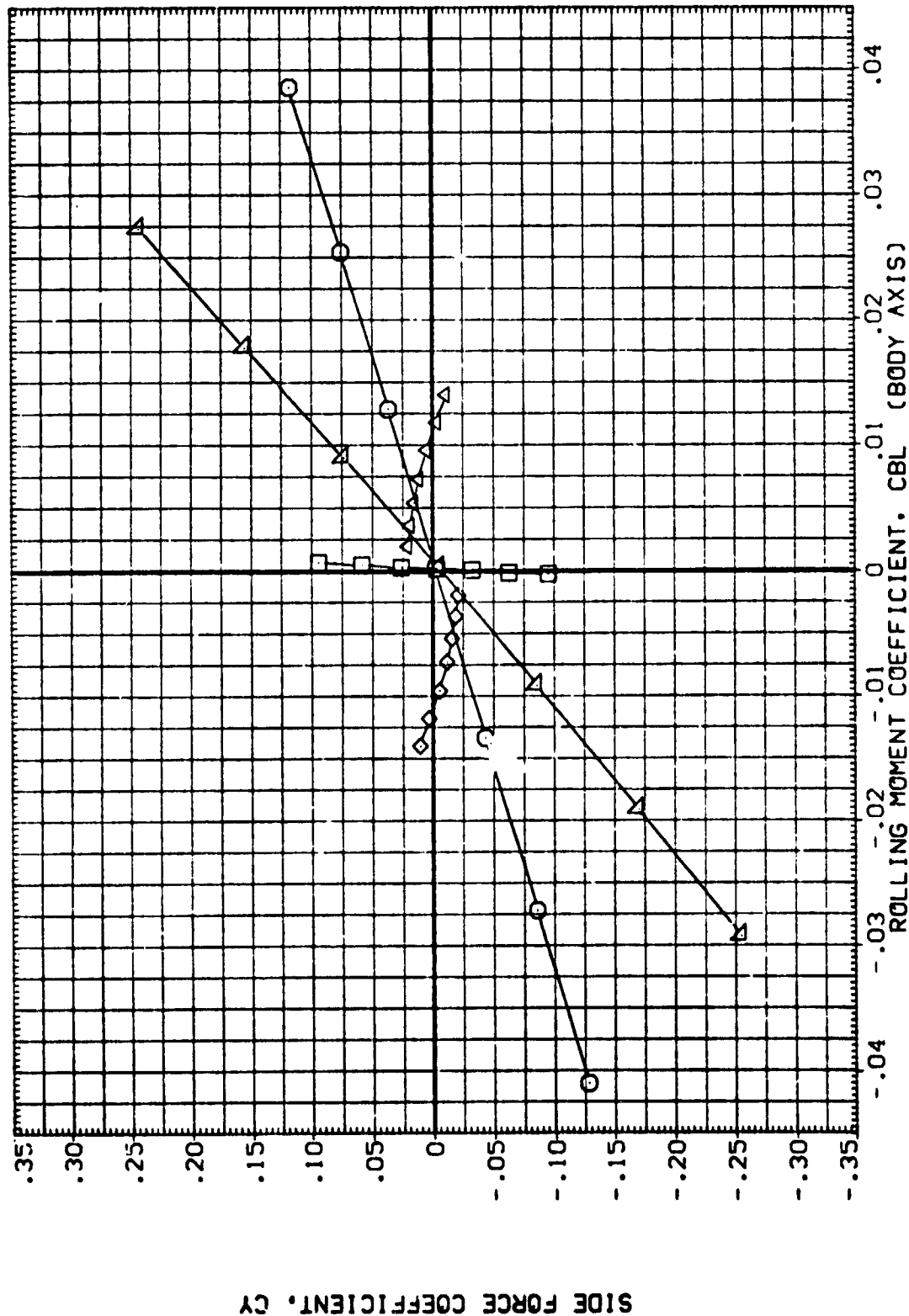


FIG. 28 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4
(B)ALPHA= -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(LET038)	APES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.500	.000	SREF 2690.0000 SQ.FT.
(LET138)	APES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.500	.000	LREF 1297.0000 IN.
(LET139)	APES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.500	.000	BREF 1297.0000 IN.
(LET138)	APES97-019(IAB1) LVAP R-LRB ALL HL SEALED	8.000	-4.000	2.500	.000	XMRP 976.0000 IN. XT
(LET138)	APES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.500	.000	YMRP 400.0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

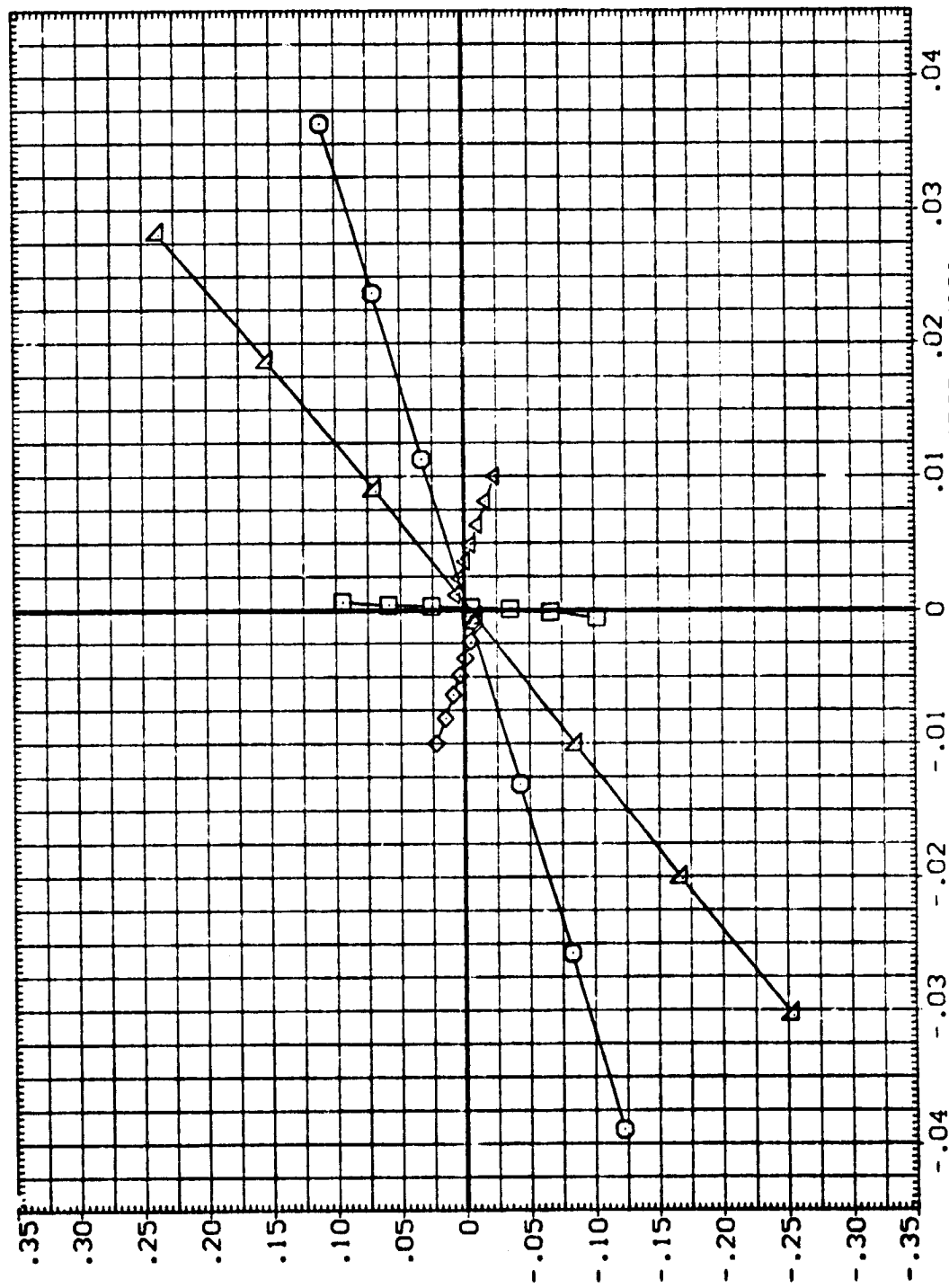


FIG. 28 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4
(C)ALPHA1= -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-09	MACH	SPOBRK	REFERENCE INFORMATION
(LET038)	AMES97-019(1A81) LVAP CRB11ER-ALL HL SEALED	8.000	-4.000	2.500	.000	SREF 2690.0000 SO.FT.
(LET138)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.500	.000	LREF 1297.0000 IN.
(LET138)	AMES97-019(1A81) LVAP L-SPB - ALL HL SEALED	8.000	-4.000	2.500	.000	BREF 976.0000 IN. XT
(LET138)	AMES97-019(1A81) LVAP R-SPB - ALL HL SEALED	8.000	-4.000	2.500	.000	YMRP .0000 IN. YT
(LET138)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.500	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

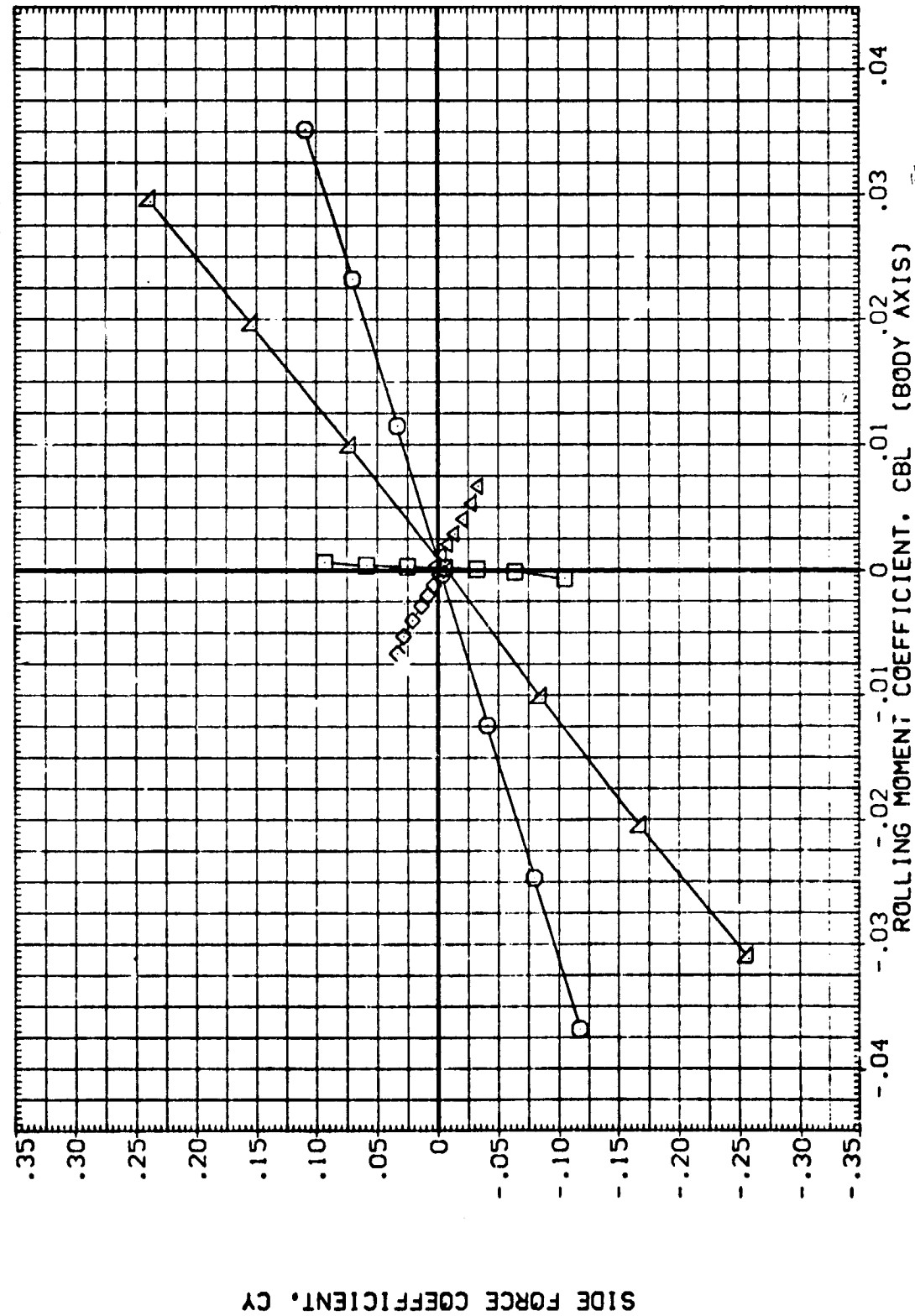


FIG. 28 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4

(0)ALPHA1= .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-TB	ELV-CB	MACH	SPDRK	REFERENCE INFORMATION
(LE1038)	AMES97-019(TAB1) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.500	.000	SREF 2690.0000 SD.FT.
(LE1138)	AMES97-019(TAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.500	.000	LREF 1297.0000 IN.
(LE1134)	AMES97-019(TAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.500	.000	BREF 1297.0000 IN.
(LE1138)	AMES97-019(TAB1) LVAP R-LPB ALL HL SEALED	8.000	-4.000	2.500	.000	YMRP 976.0000 IN. XT
(LE1138)	AMES97-019(TAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.500	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

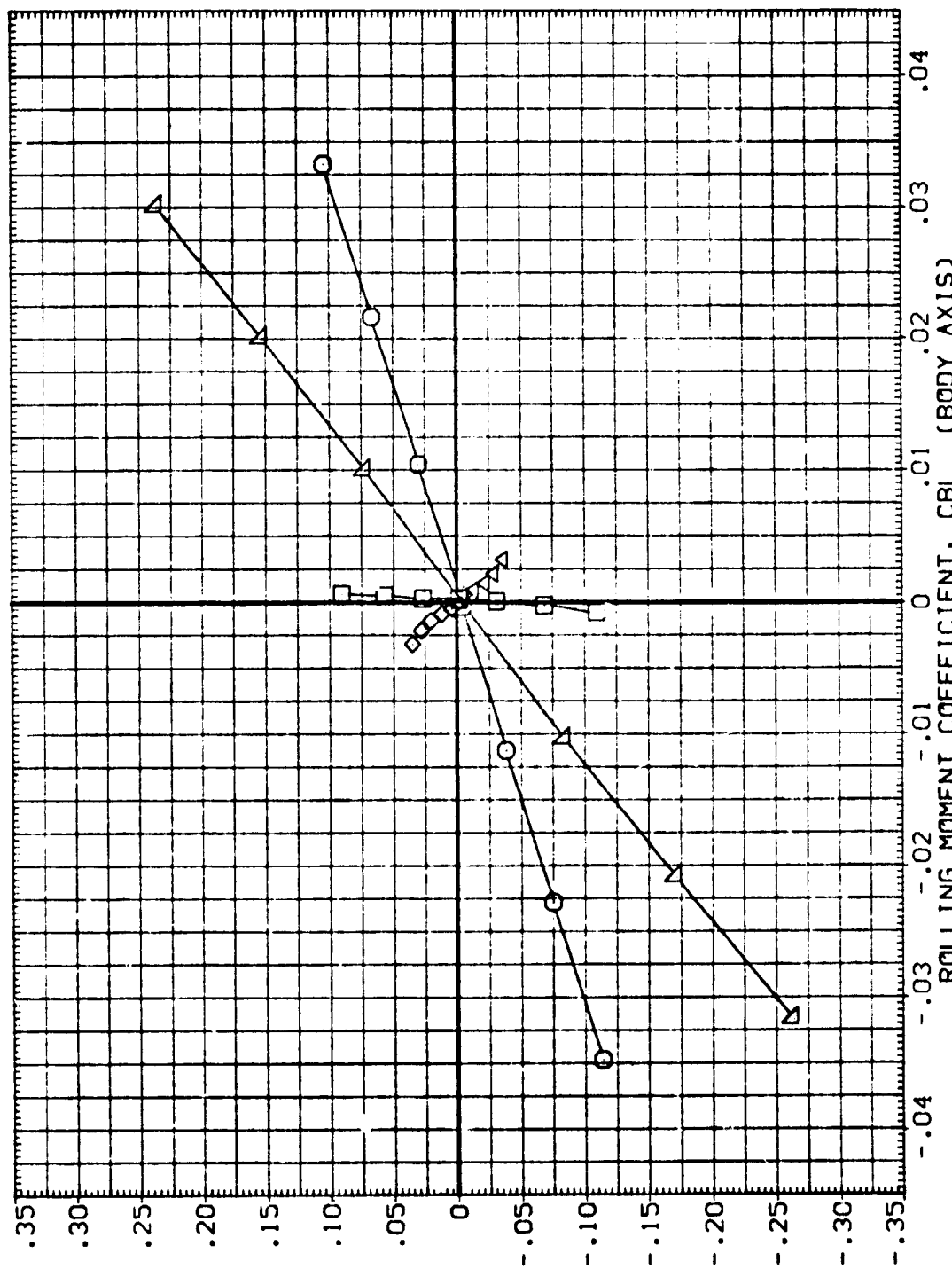


FIG. 28 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS. M=2.5 DEV=8/-4
(E)ALPHA= 2.00 PAGE 720

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPOBRK	REFERENCE INFORMATION
(LET038)	AMES97-019(IAB1) LVAP ORB1TER-ALL HL SEALED	8.000	-4.000	2.500	.000	SREF 2690.0000 SQ.FT.
(LET138)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.500	.000	LREF 1297.0000 IN.
(LET139)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.500	.000	BREF 976.0000 IN. XT
(LET138)	AMES97-019(IAB1) LVAP R-LPB ALL HL SEALED	8.000	-4.000	2.500	.000	YMRP .0000 IN. YT
(LET138)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.500	.000	ZMRP 400.0000 IN. ZT

SCALE .0300

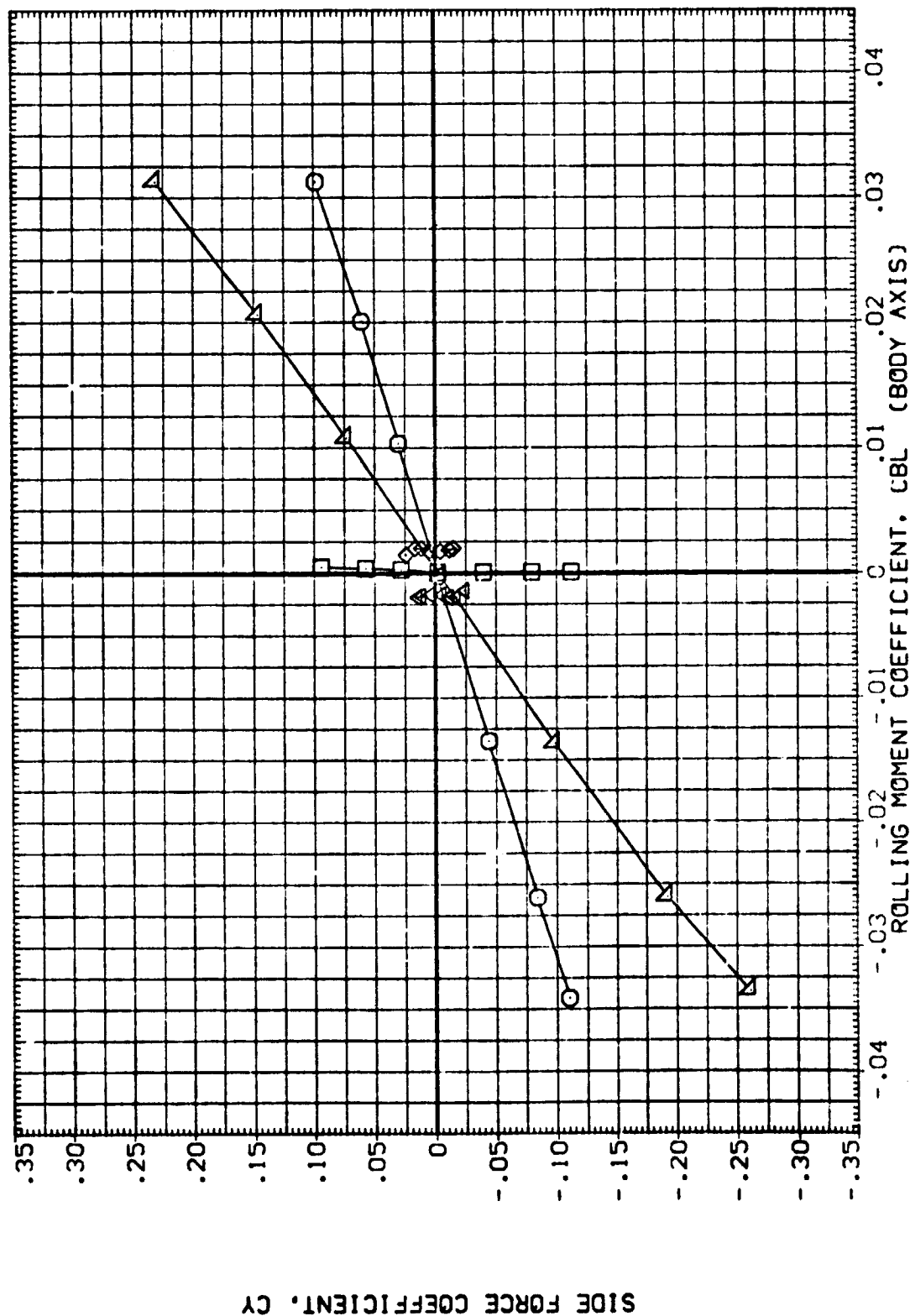


FIG. 28 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4

(F)ALPHA= 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LET038)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	9.000	-4.000	2.500	.000	SREF 2690.0000 SQ.FT.
(LET138)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	8.000	-4.000	2.500	.000	LREF 1297.0000 IN.
(LET138)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	8.000	-4.000	2.500	.000	BREF 1297.0000 IN.
(LET138)	AMES97-019(IAB1) LVAP R-1RB - ALL HL SEALED	8.000	-4.000	2.500	.000	XMRP 976.0000 IN.
(LET138)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	2.500	.000	YMRP .0000 IN.
						ZMRP 403.0000 IN.
						SCALE .0300

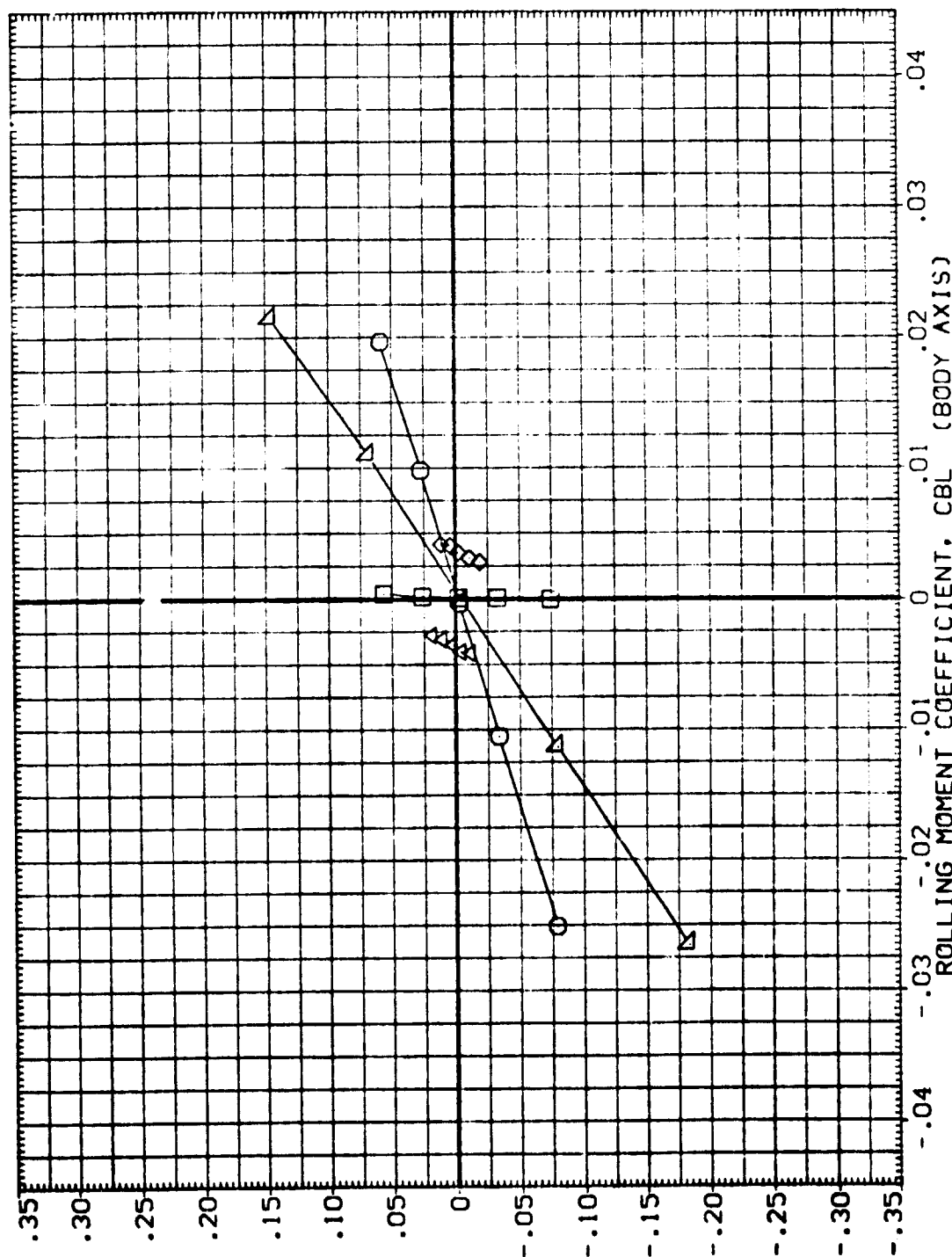


FIG. 28 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=8/-4

(G)ALPHA= 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-CB	MACH	SPOBRK	REFERENCE INFORMATION
(LE1042)	AMES97-0191(A81) LVAP ORBITER-ALL HL SEALED	.000	.000	2.500	.000	SREF 2690.0000 SO.FT.
(LE1142)	AMES97-0191(A81) LVAP TANK - ALL HL SEALED	.000	.000	2.500	.000	LREF 1297.0000 IN.
(LE1242)	AMES97-0191(A81) LVAP L-SRR - ALL HL SEALED	.000	.000	2.500	.000	BREF 1297.0000 IN.
(LE1342)	AMES97-0191(A81) LVAP R-LRB - ALL HL SEALED	.000	.000	2.500	.000	XMRP 976.0000 IN.
(LE1442)	AMES97-0191(A81) LVAP INT VEH ALL HL SEALED	.000	.000	2.500	.000	YMRP .0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

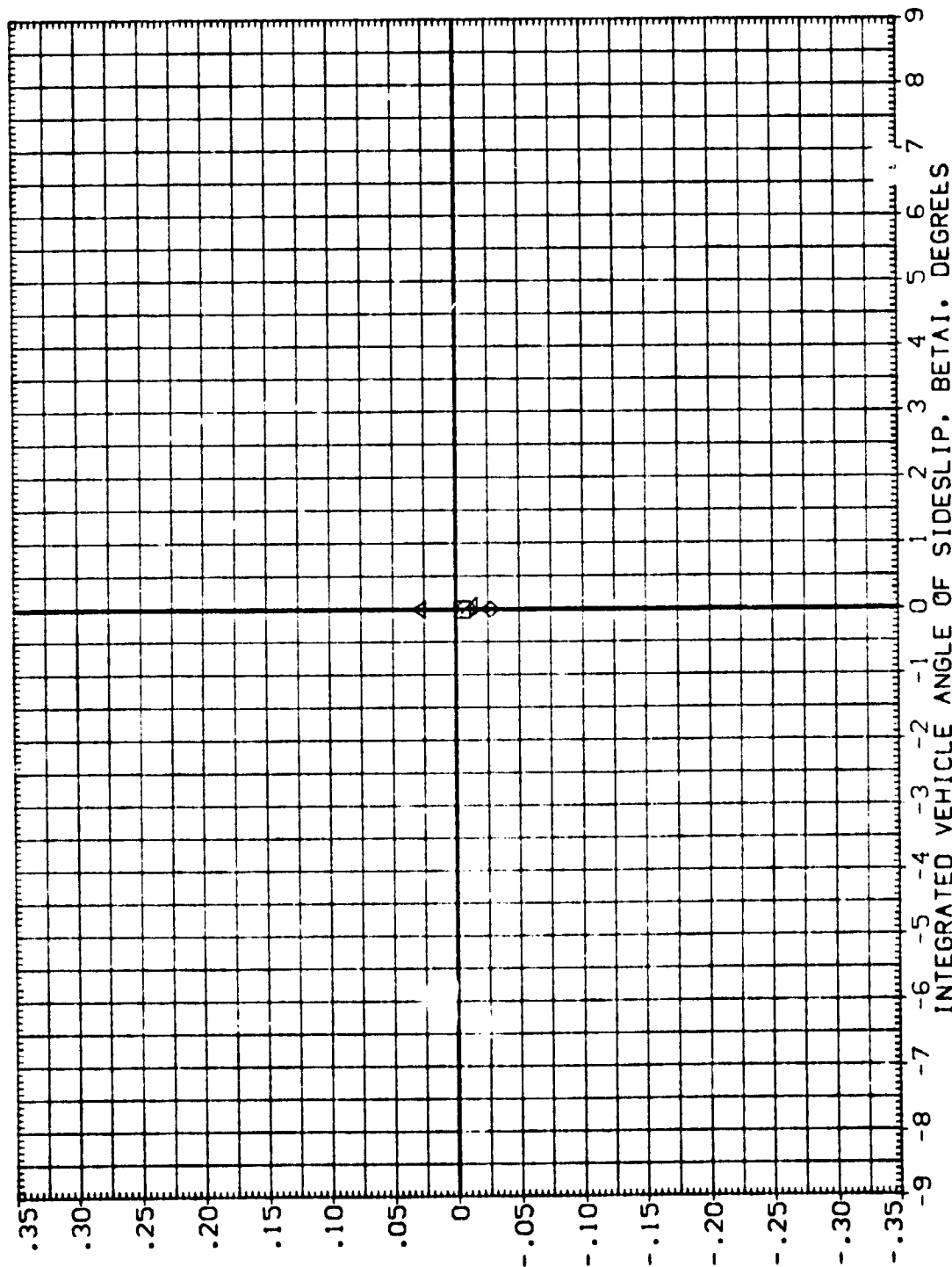


FIG. 29 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=0/0

(A) ALPHA = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-09	MACH	SPOBRK	REFERENCE INFORMATION
(LE1042)	AMES97-019(IAB1) LVAP DBBITTER-ALL HL SEALED	.000	.000	2.500	.000	SREF 2690.0000 SQ.FT.
(LE1142)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.500	.000	LREF 1297.0000 IN.
(LE1L42)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.500	.000	BREF 1297.0000 IN.
(LE1R42)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	.000	.000	2.500	.000	XMRP 976.0000 IN. XT
(LE1142)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.500	.000	ZMRP 400.0000 IN. ZT
						SCALE .0300

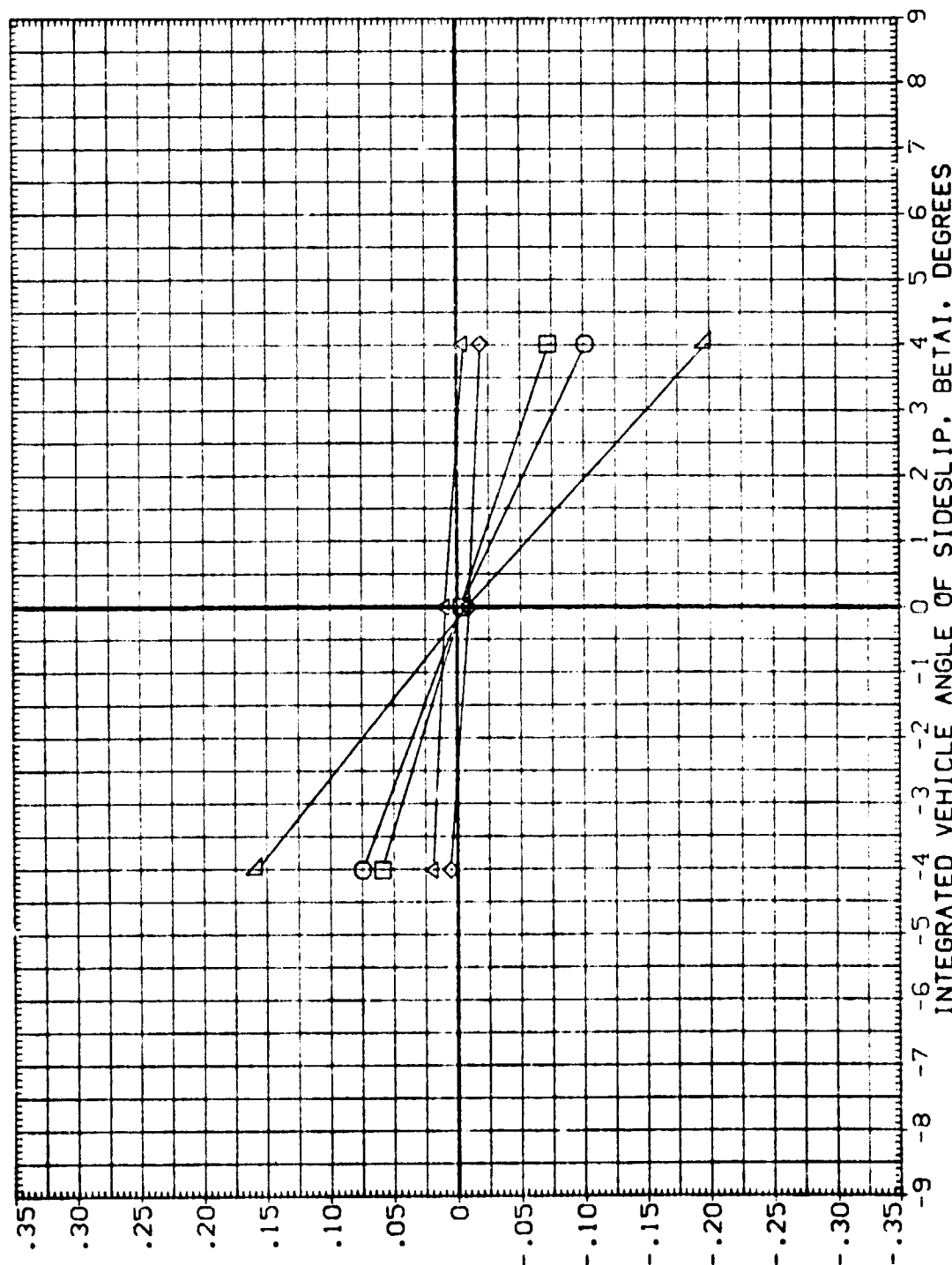


FIG. 29 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=0/0
(B) ALPHA1 = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LE1042)	AMES97-019(1A81) LVAP ORBITER-ALL HL SEALED	.000	.000	2.500	.000	SREF 2690.0000 SQ.FT.
(LE1142)	AMES97-019(1A81) LVAP T-ALL HL SEALED	.000	.000	2.500	.000	LREF 1297.0000 IN.
(LE1242)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	.000	.000	2.500	.000	BREF 1297.0000 IN.
(LE1342)	AMES97-019(1A81) LVAP R-LRB - ALL HL SEALED	.000	.000	2.500	.000	XMRP 976.0000 IN. XT
(LE142)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	.000	.000	2.500	.000	ZMRP 400.0000 IN. YT
						SCALE .0300

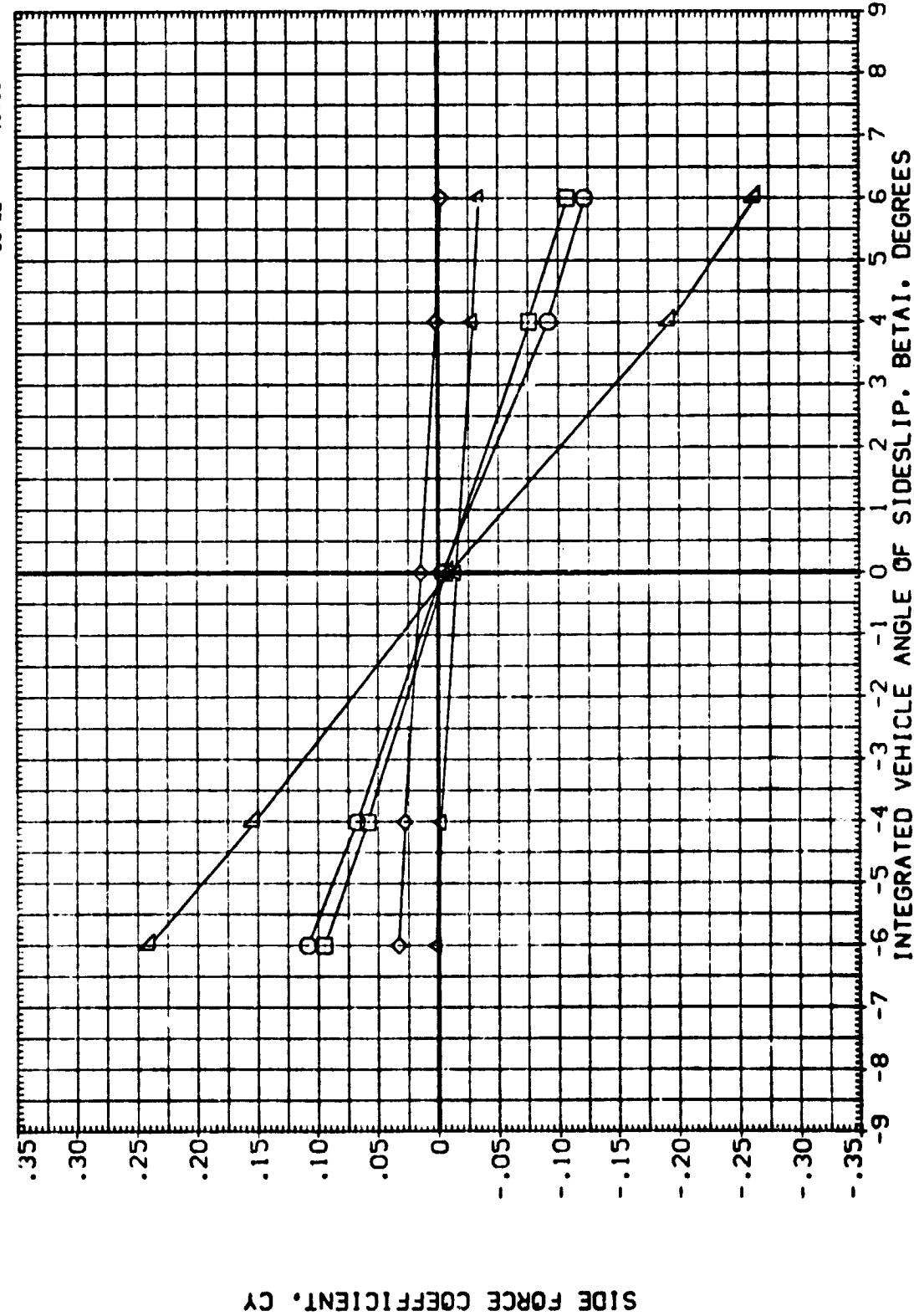


FIG. 29 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=0/0
 (C)ALPHA= .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-CB	MACH	SPDRK	REFERENCE INFORMATION
(LETC42)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	.000	.000	2.500	.000	SREF 2590.0000 SO.FT.
(LETL42)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.500	.000	LREF 1297.0000 IN.
(LETR42)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.500	.000	BREF 1297.0000 IN.
(LETR42)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	.000	.000	2.500	.000	XMRP 976.0000 IN.
(LETR42)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.500	.000	YMRP .0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

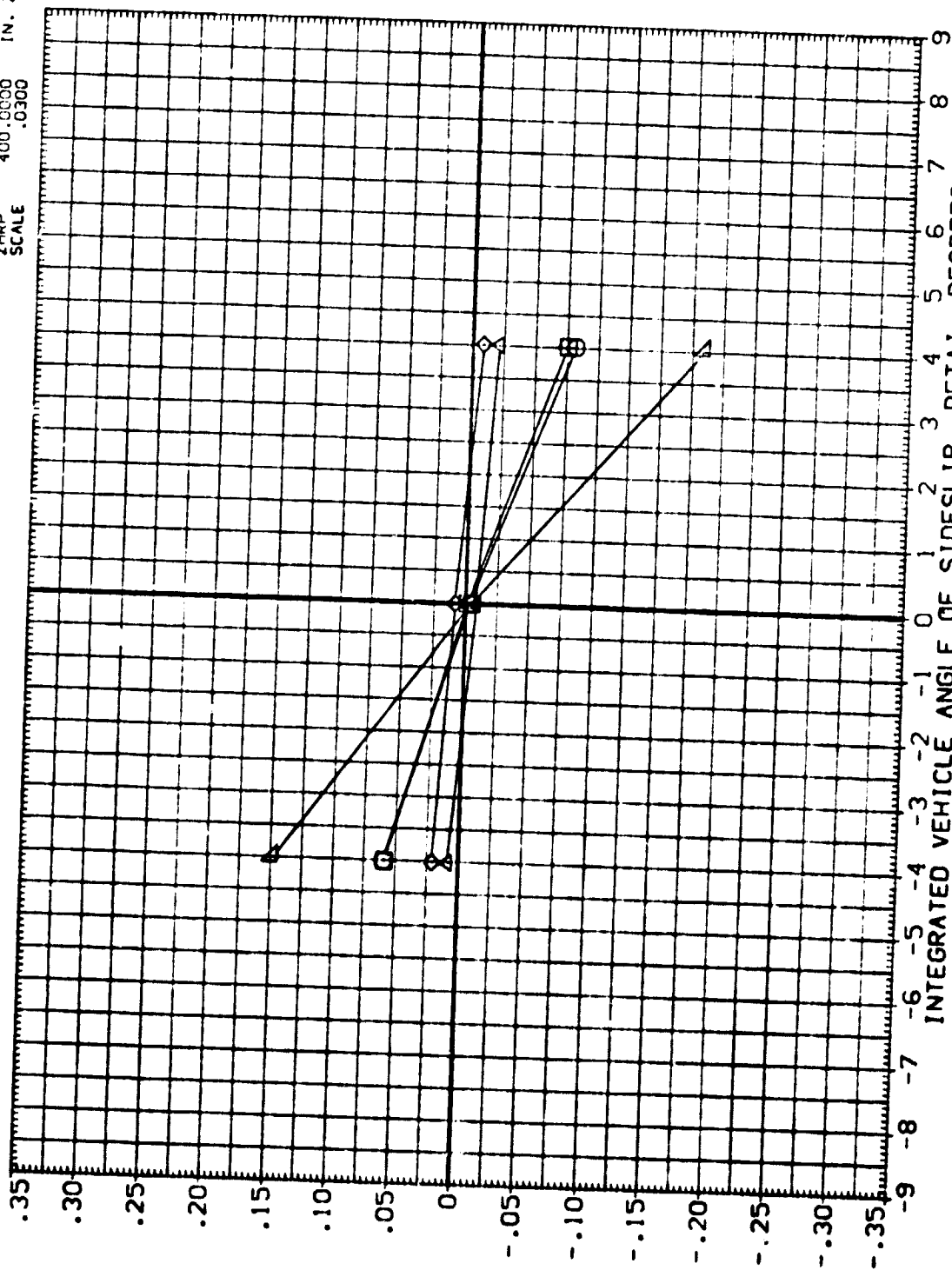


FIG. 29 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=0/0
 (D) ALPHA= 4.00

REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LE1042)	AMES97-019(1A81) LVAP	.000	.000	2.500	.000	SREF 2690.0000 SD.FT.
(LE1142)	AMES97-019(1A81) LVAP	.000	.000	2.500	.000	UREF 1297.0000 IN.
(LE1242)	AMES97-019(1A81) LVAP	.000	.000	2.500	.000	BREF 1297.0000 IN.
(LE1342)	AMES97-019(1A81) LVAP	.000	.000	2.500	.000	XMRP 976.0000 IN. XT
(LE1442)	AMES97-019(1A81) LVAP	.000	.000	2.500	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

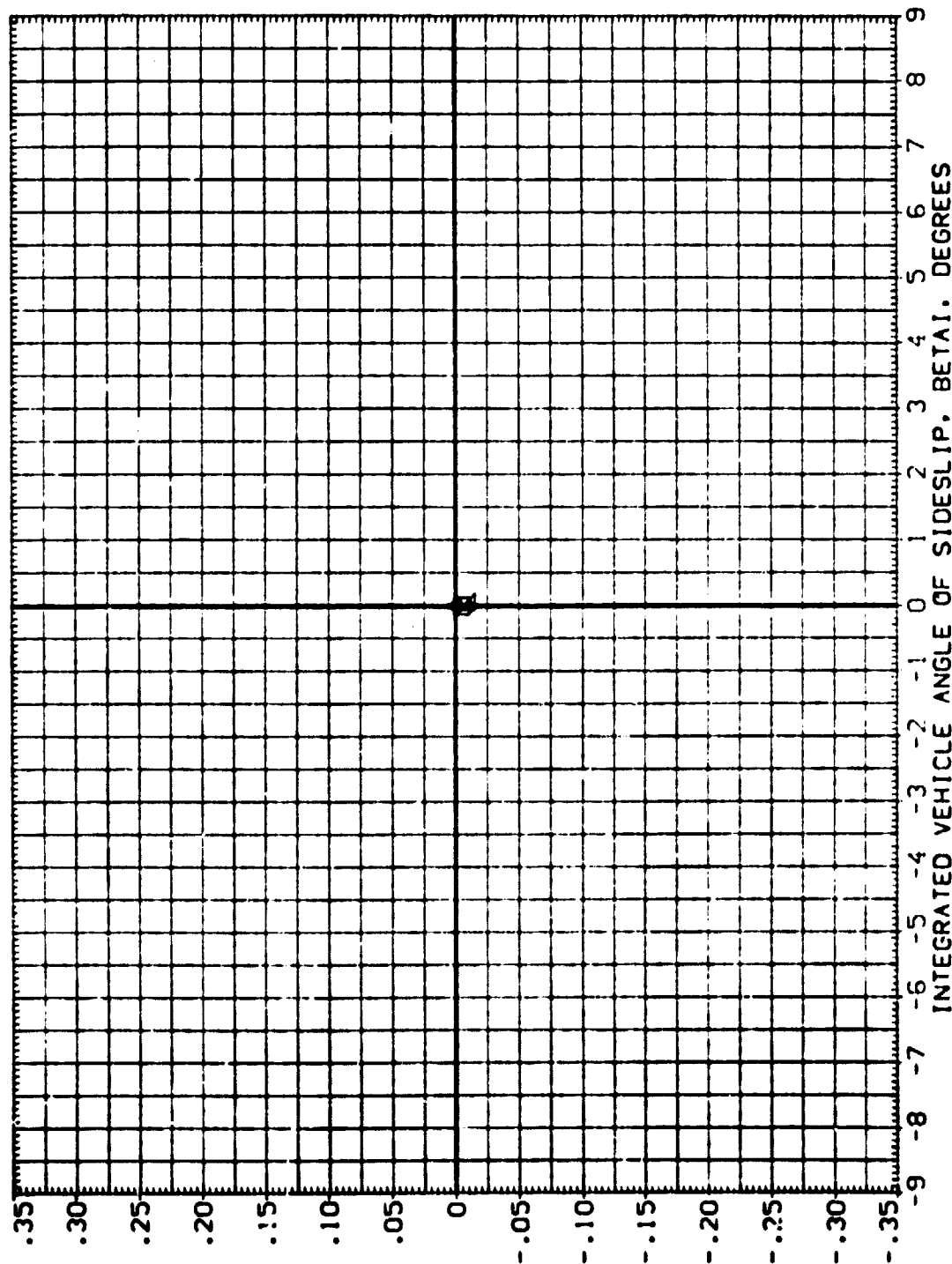


FIG. 29 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=0/0
(E)ALPHA= 6.00

FOREBODY YAWING MOMENT COEFFICIENT, CYNF

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-19	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(LETD42)	AME S97-0191 (AB1) LVAP	.000	.000	2.500	.000	GREF 2690.0000 SQ.FT.
(LETD42)	AME S97-0191 (AB1) LVAP	.000	.000	2.500	.000	LREF 1297.0000 IN.
(LETD42)	AME S97-0191 (AB1) LVAP	.000	.000	2.500	.000	BREF 1297.0000 IN.
(LETD42)	AME S97-0191 (AB1) LVAP	.000	.000	2.500	.000	YMRP 976.0000 IN.
(LETD42)	AME S97-0191 (AB1) LVAP	.000	.000	2.500	.000	ZMRP 400.0000 IN.
(LETD42)	AME S97-0191 (AB1) LVAP	.000	.000	2.500	.000	SCALE 0.000

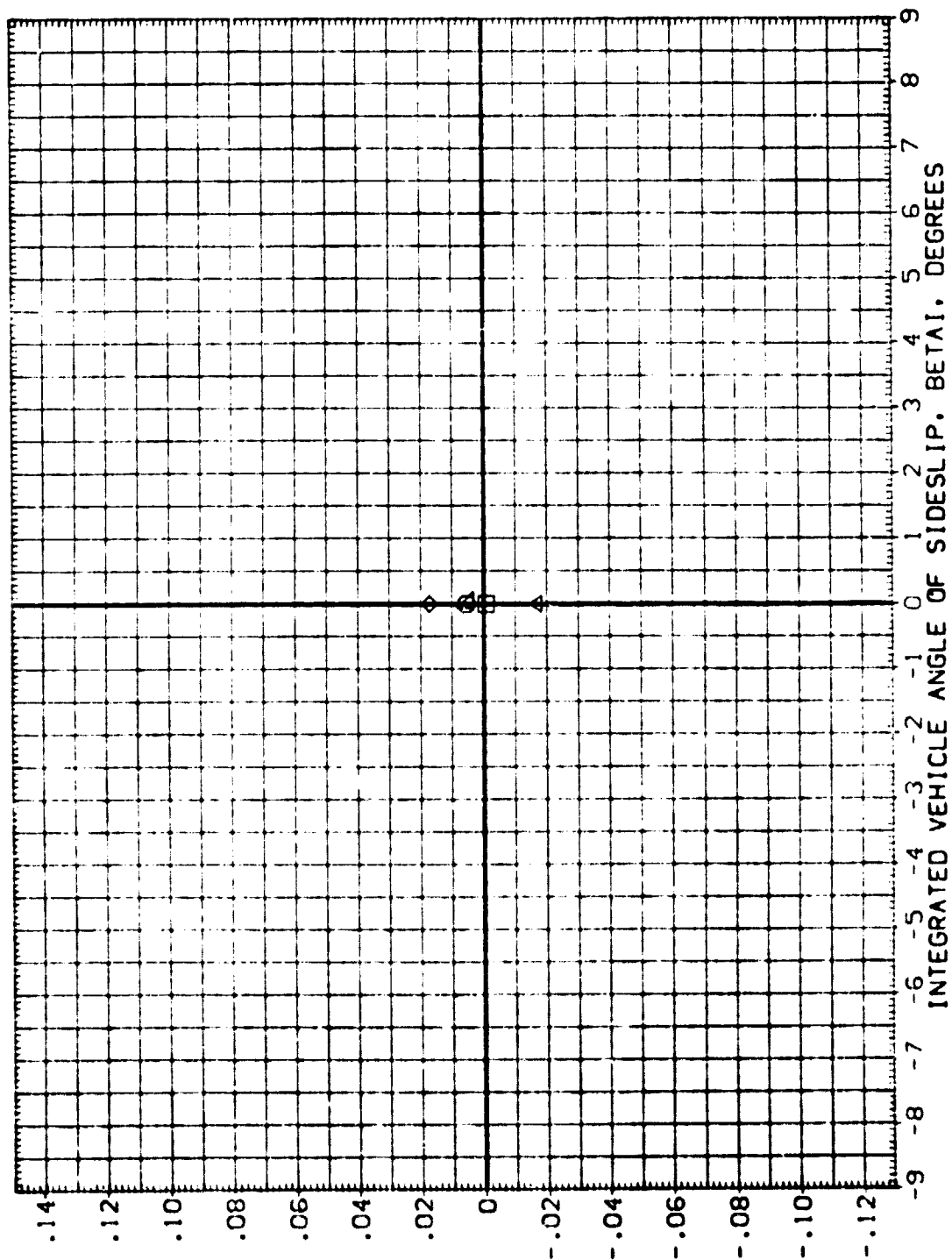


FIG. 29 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=0/0

(A) ALPHA = -6.00

DATA SET	SYMBOL	CONFIGURATION	DESCRIPTION	ELV-18	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(LE1042)	□	AMES97-0191(IAB1)	LVP	.000	.000	2.500	.000	SREF 2690.0000 SO.17.
(LE1142)	□	AMES97-0191(IAB1)	LVP	.000	.000	2.500	.000	LREF 1297.0000 IN.
(LE1242)	□	AMES97-0191(IAB1)	LVP	.000	.000	2.500	.000	BREF 1297.0000 IN.
(LE1342)	□	AMES97-0191(IAB1)	LVP	.000	.000	2.500	.000	XREF 976.0000 IN.
(LE1442)	□	AMES97-0191(IAB1)	LVP	.000	.000	2.500	.000	YREF 400.0000 IN.
(LE1542)	□	AMES97-0191(IAB1)	LVP	.000	.000	2.500	.000	ZREF 400.0000 IN.
(LE1642)	□	AMES97-0191(IAB1)	LVP	.000	.000	2.500	.000	SCALE .0300

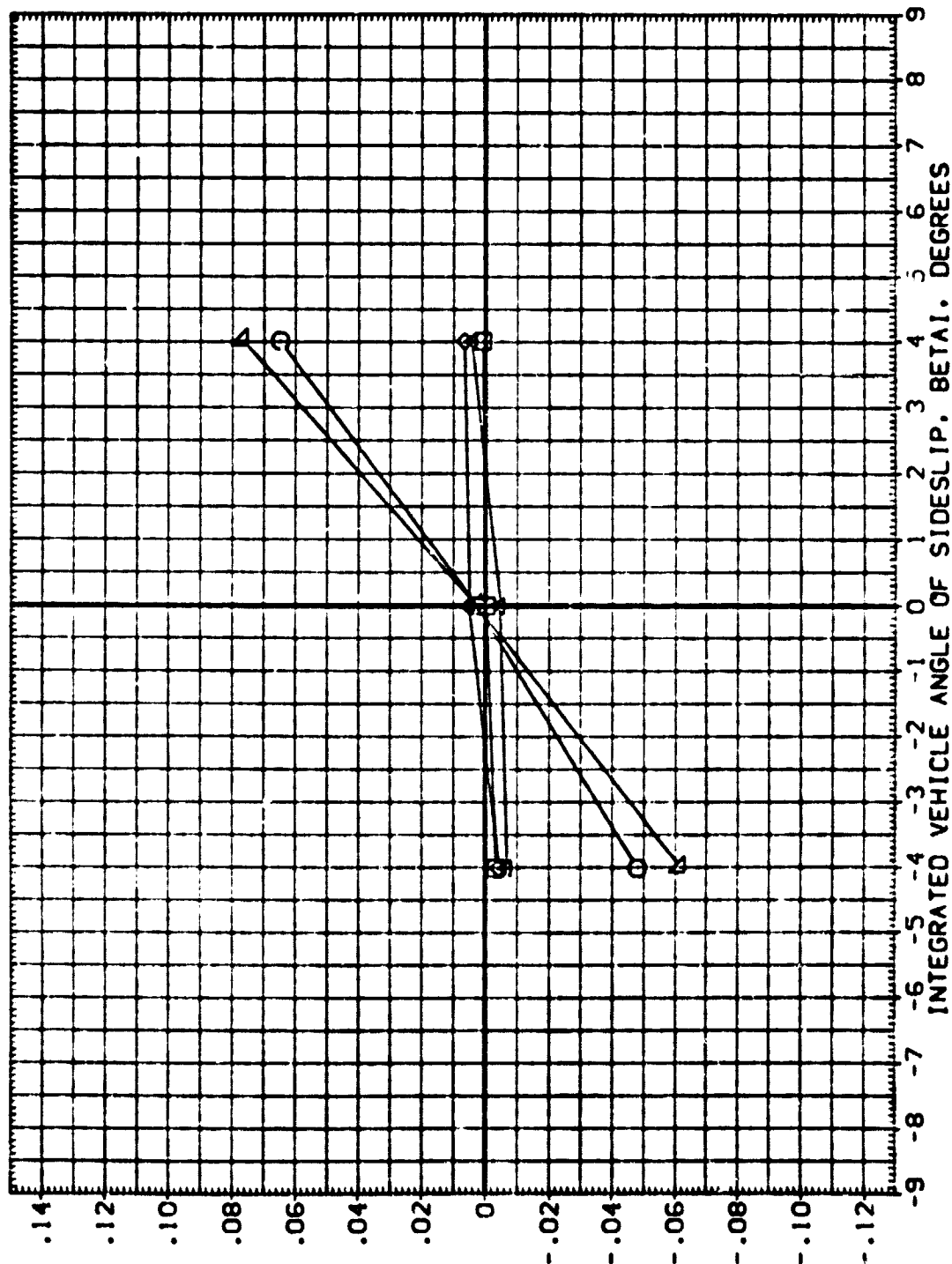


FIG. 29 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=0/0
(B) ALPHA= -4.00

DATA SET SYMBOL: (LET042) (LET142) (LET142) (LET142) (LET142)

CONFIGURATION DESCRIPTION: AMES97-019(IAB1) LVAP ORBITER-ALL M SEALED
 AMES97-019(IAB1) LVAP TANK - ALL M SEALED
 AMES97-019(IAB1) LVAP L-SRB - ALL M SEALED
 AMES97-019(IAB1) LVAP R-LRB - ALL M SEALED
 AMES97-019(IAB1) LVAP INT VEN ALL M SEALED

ELV-1B ELV-08 MACH SPOBRK REFERENCE INFORMATION SO.FT.
 .000 .000 2.500 .000 SREF 2690.0000
 .000 .000 2.500 .000 LREF 1297.0000
 .000 .000 2.500 .000 BREF 1297.0000
 .000 .000 2.500 .000 YHRP 976.0000
 .000 .000 2.500 .000 YHRP 400.0000
 .000 .000 2.500 .000 YHRP 400.0000
 SCALE .0300

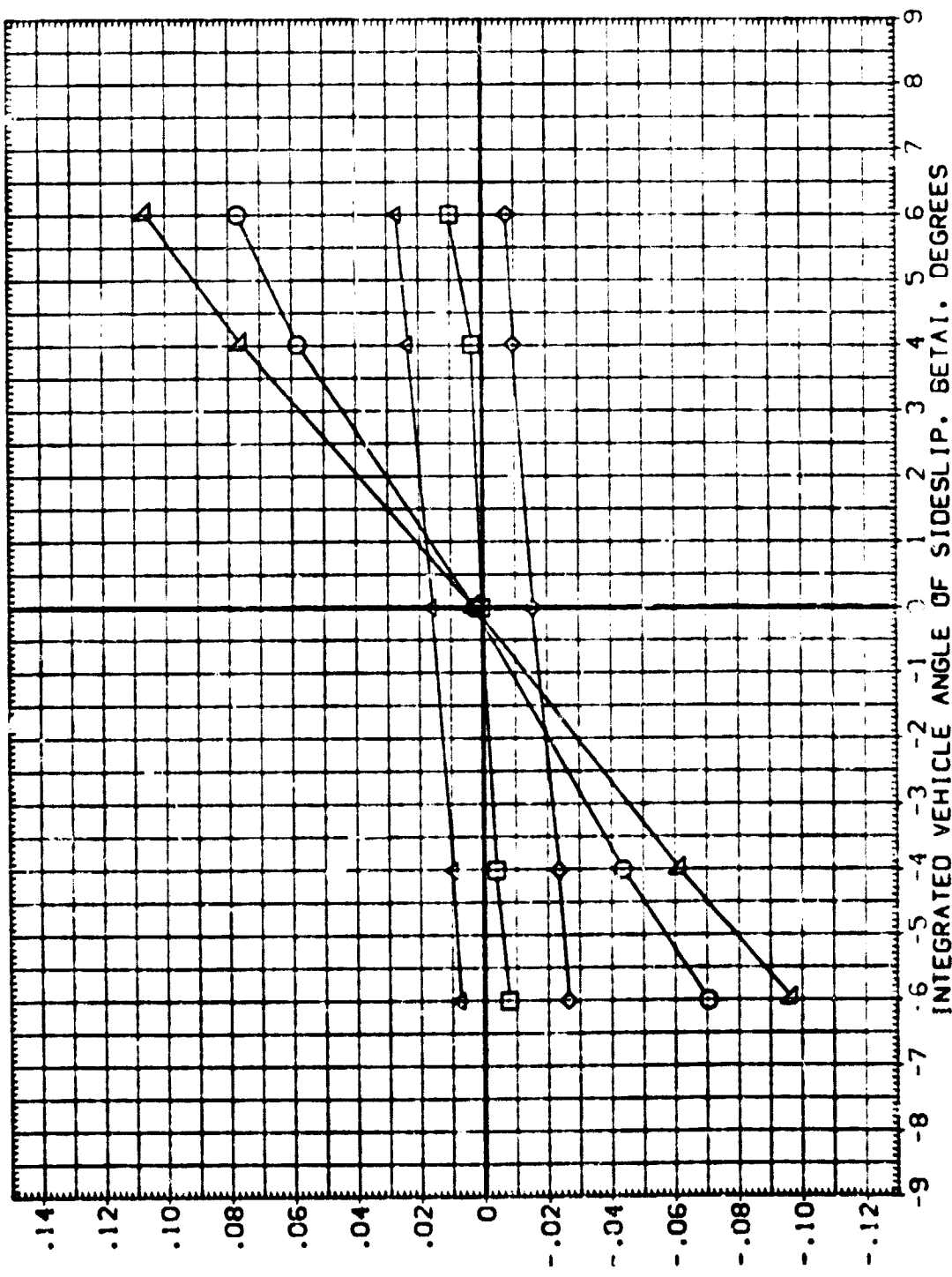
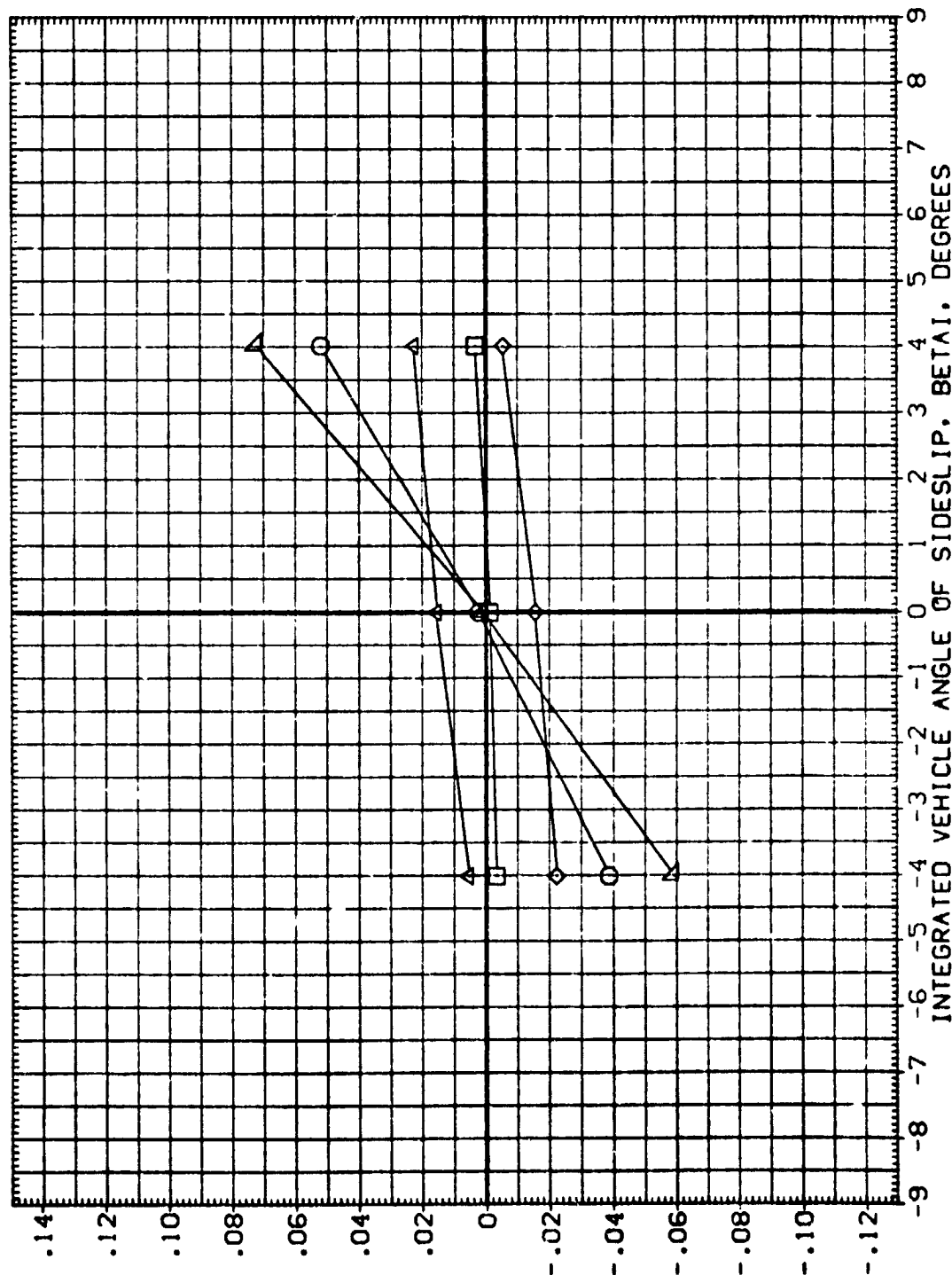


FIG. 29 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=0/0

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-DB	MACH	SPDRK	REFERENCE INFORMATION
(LETO42)	AME597-019(IAB1) LVAP CRBITER-ALL HL SEALED	.000	.000	2.500	.000	JREF 2690.0000 SQ.FT.
(LETT42)	AME597-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.500	.000	LREF 1297.0000 IN.
(LETL42)	AME597-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.500	.000	BREF 1297.0000 IN.
(LETR42)	AME597-019(IAB1) LVAP R-LRB ALL HL SEALED	.000	.000	2.500	.000	XMRP 976.0000 IN. KT
(LETT42)	AME597-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.500	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300



FOREBODY YAWING MOMENT COEFFICIENT, CYNF

FIG. 29 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=0/0

(D) ALPHA I= 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LE1042)	AMES97-019(IAB1) LVAP CRB11-R-ALL HL SEALED	.000	.000	2.500	.000	SREF 2690.0000 SQ.FT.
(LE1142)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.500	.000	LREF 1297.0000 IN.
(LE1L42)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.500	.000	BREF 1297.0000 IN.
(LE1R42)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	.000	.000	2.500	.000	XMRP 976.0000 IN.
(LE1142)	AMES97-015(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.500	.000	ZMRP 400.0000 IN.
						SCALE .0300

FOREBODY YAWING MOMENT COEFFICIENT, CYNF

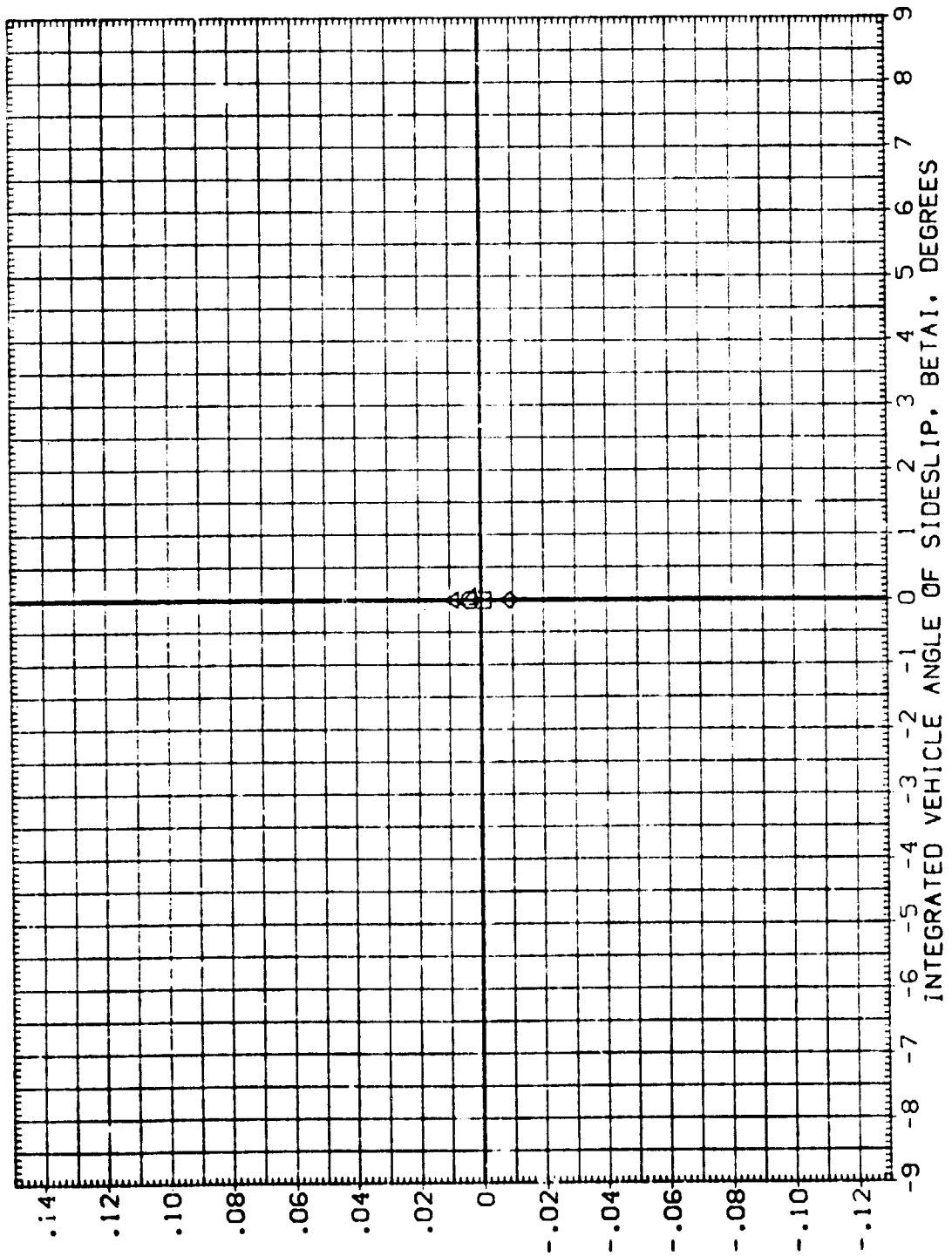
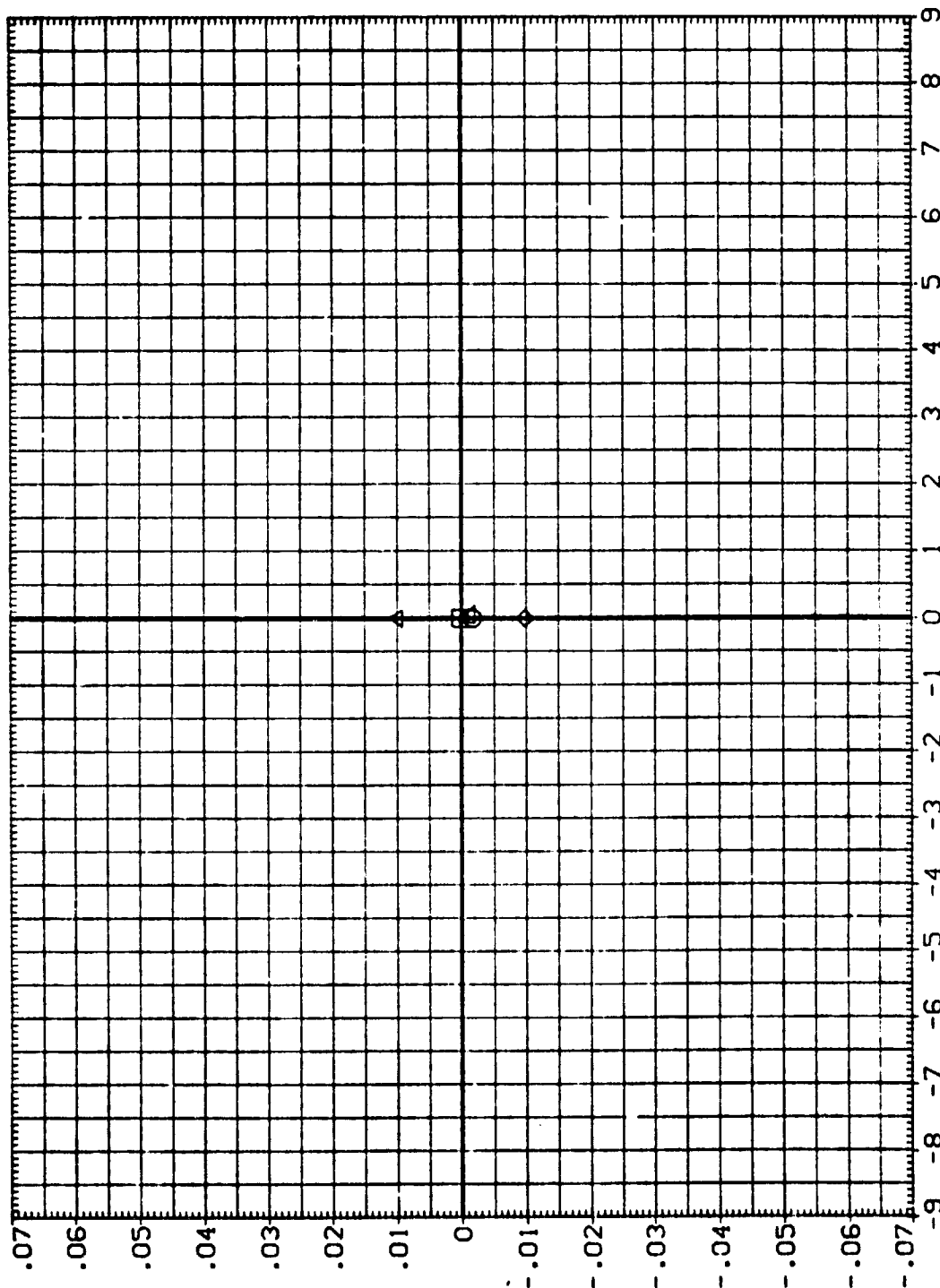


FIG. 29 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=0/0
(E)ALPHA= 6.00 PAGE 732

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(LET042)	AMES97-019(1A81) LVAP	.000	.000	2.500	.000	SREF 2690.0000 SQ.FT.
(LET142)	AMES97-019(1A81) LVAP	.000	.000	2.500	.000	LREF 1297.0000 IN.
(LET142)	AMES97-019(1A81) LVAP	.000	.000	2.500	.000	BREF 1297.0000 IN.
(LET142)	AMES97-019(1A81) LVAP	.000	.000	2.500	.000	XHRP 976.0000 IN. XT
(LET142)	AMES97-019(1A81) LVAP	.000	.000	2.500	.000	YHRP 400.0000 IN. YT
(LET142)	AMES97-019(1A81) LVAP	.000	.000	2.500	.000	ZHRP 400.0000 IN. ZT
						SCALE .0300



ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

FIG. 29 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=0/0

(A) ALPHA = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LE1042)	AMES97-019(IAB1) LVAP C33:TER-ALL HL SEALED	.000	.000	2.500	.000	SREF 2690.0000
(LE1142)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.500	.000	LREF 1297.0000
(LE1242)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.500	.000	BREF 1297.0000
(LE1342)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	.000	.000	2.500	.000	XMRP 976.0000
(LE1442)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.500	.000	YMRP .0000
						ZMRP 400.0000
						SCALE .0300

ROLLING MOMENT COEFFICIENT, CBL (BODY AXIS)

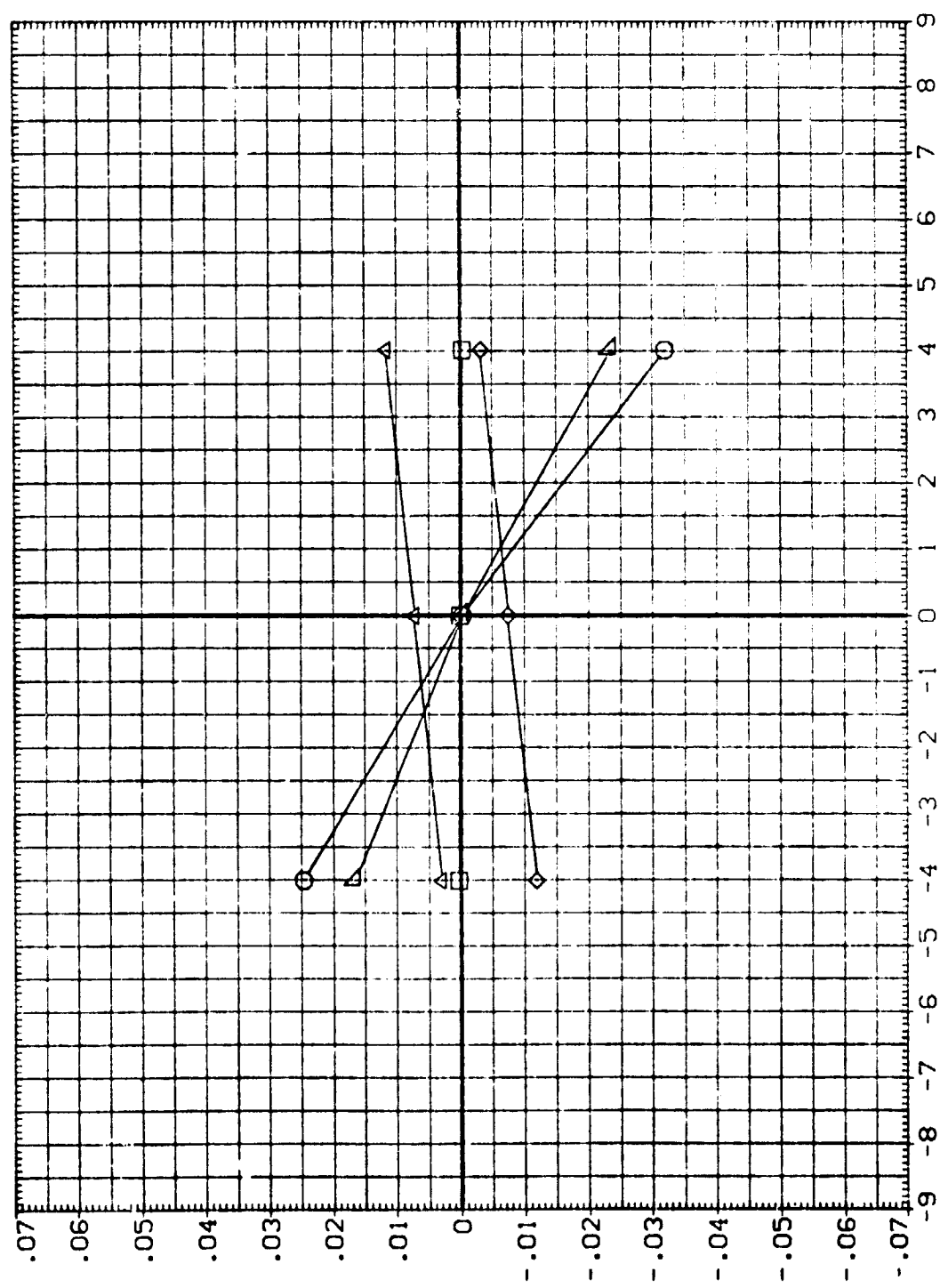


FIG. 29 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=0/0
 (B) ALPHA = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION			
(LET042)	AMES97-019(IAB1) LVAP ORBITTER-ALL HL SEALED	.000	.000	2.500	.000	SREF	2690.0000	SG.FT.	
(LET142)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.500	.000	LREF	1297.0000	IN.	
(LET142)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.500	.000	BREF	1297.0000	IN.	XT
(LET142)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	.000	.000	2.500	.000	YMRP	976.0000	IN.	YT
(LET142)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.500	.000	ZMRP	400.0000	IN.	ZT
						SCALE	.0300		

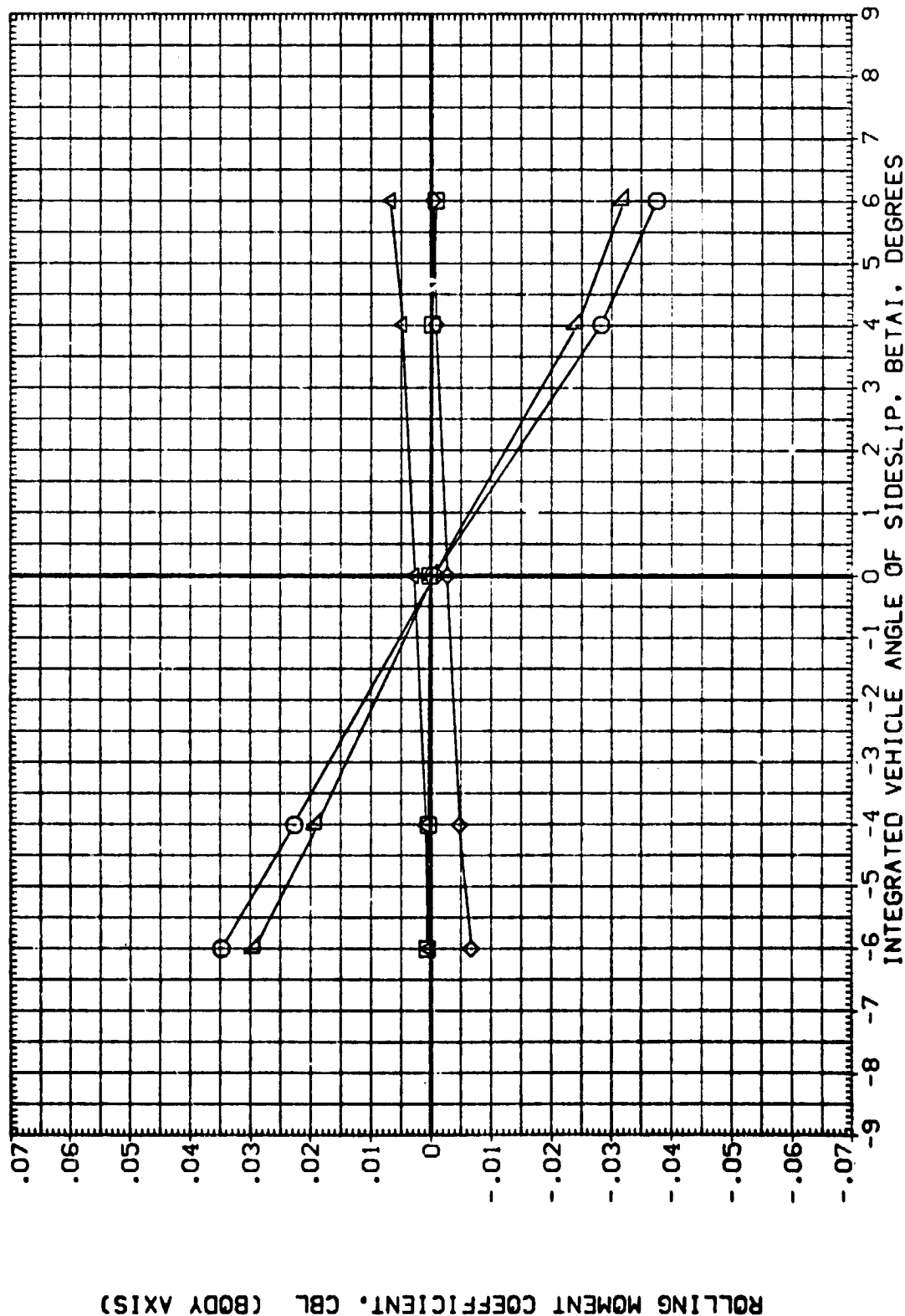


FIG. 29 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=0/0

(CJALPHA) = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LET042)	AMES97-019(1A81) LVAP ORBITTER-ALL HL SEALED	.000	.000	2.500	.000	SREF 2690.0000 SQ.FT.
(LET142)	AMES97-019(1A81) LVAP TANK - ALL HL SEALED	.000	.000	2.500	.000	LREF 1297.0000 IN.
(LET142)	AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED	.000	.000	2.500	.000	BREF 1297.0000 IN.
(LET142)	AMES97-019(1A81) LVAP R-SRB - ALL HL SEALED	.000	.000	2.500	.000	YMRP .0000 IN.
(LET142)	AMES97-019(1A81) LVAP INT VEH ALL HL SEALED	.000	.000	2.500	.000	ZMRP .0000 IN.
						SCALE 400.0000 IN.

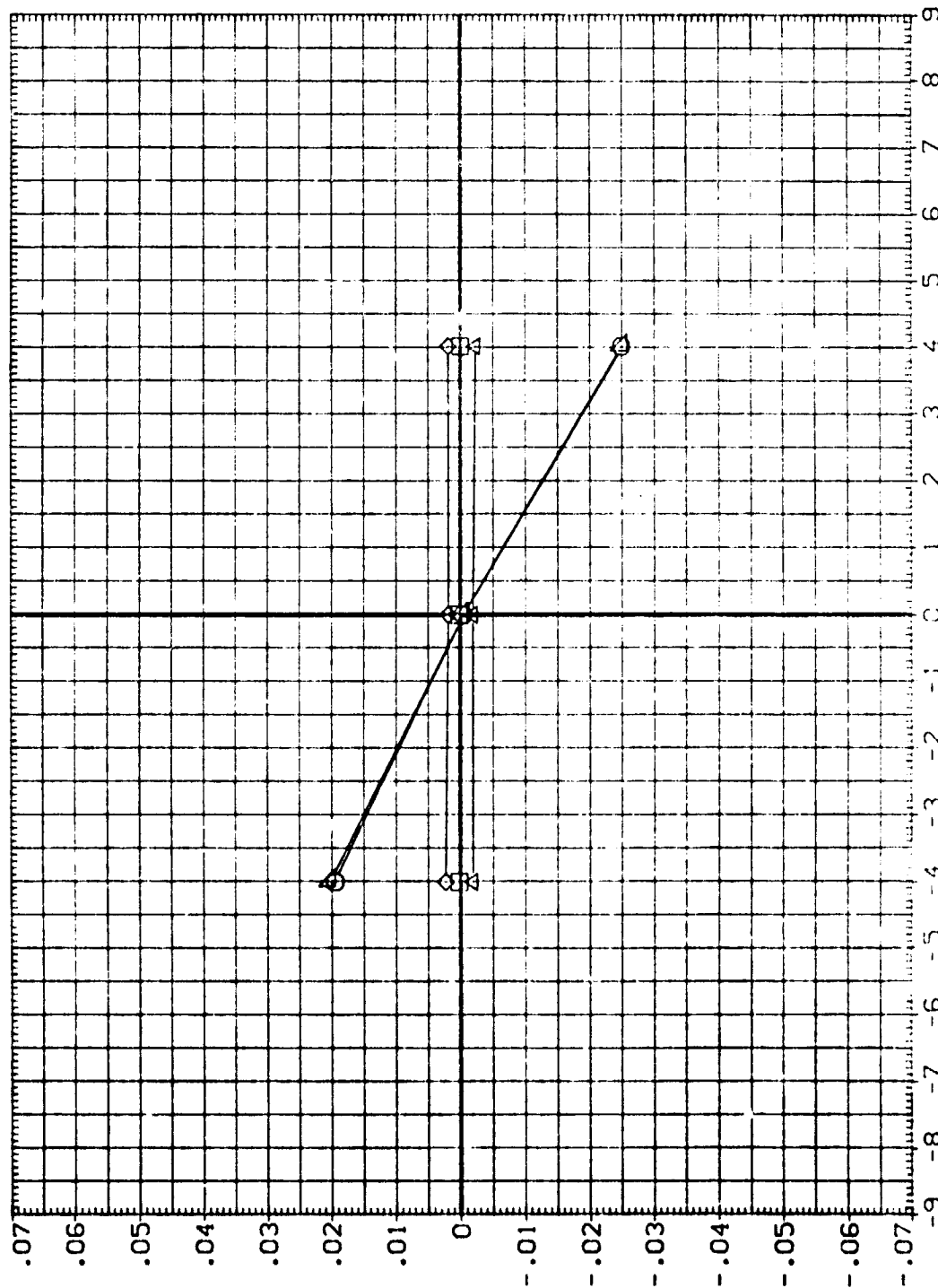


FIG. 29 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=0/0
 (0)ALPHA= 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LETD42)	AME597-019(1A81) LVAP ORBITER-ALL HL SEALED	.000	.000	2.500	.000	SREF 2690.0000 SQ.FT.
(LETT42)	AME597-019(1A81) LVAP TANK - ALL HL SEALED	.000	.000	2.500	.000	LREF 1297.0000 IN.
(LETL42)	AME597-019(1A81) LVAP L-SRB - ALL HL SEALED	.000	.000	2.500	.000	BREF 1297.0000 IN.
(LETR42)	AME597-019(1A81) LVAP R-SRB - ALL HL SEALED	.000	.000	2.500	.000	XMRP 976.0000 IN.
(LETT42)	AME597-019(1A81) LVAP INT VEH ALL HL SEALED	.000	.000	2.500	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0360

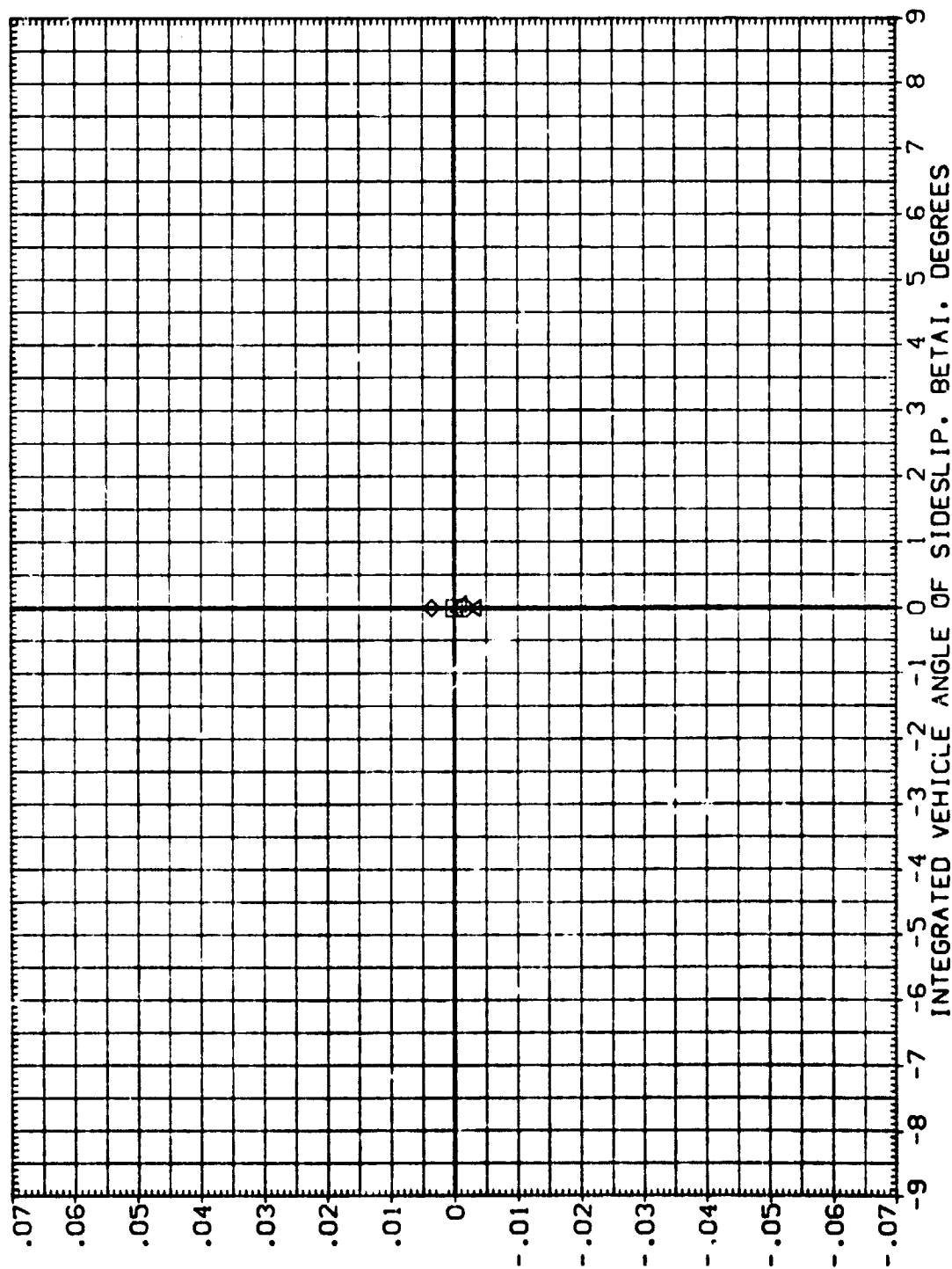


FIG. 29 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=0/0

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-09	MACH	SPDRK	REFERENCE INFORMATION
(LET042)	AMES97-0191(AB1) LVAP CRBITER-ALL HL SEALED	.000	.000	2.500	.000	SREF 2690.0000 SQ.FT.
(LET142)	AMES97-0191(AB1) LVAP TANK - ALL HL SEALED	.000	.000	2.500	.000	LREF 1297.0000 IN.
(LET142)	AMES97-0191(AB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.500	.000	BREF 1297.0000 IN.
(LET142)	AMES97-0191(AB1) LVAP R-LRB - ALL HL SEALED	.000	.000	2.500	.000	YMRP 976.0000 IN.
(LET142)	AMES97-0191(AB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.500	.000	ZMRP 400.0000 IN.
						SCALE .0300

SIDE FORCE COEFFICIENT, CY

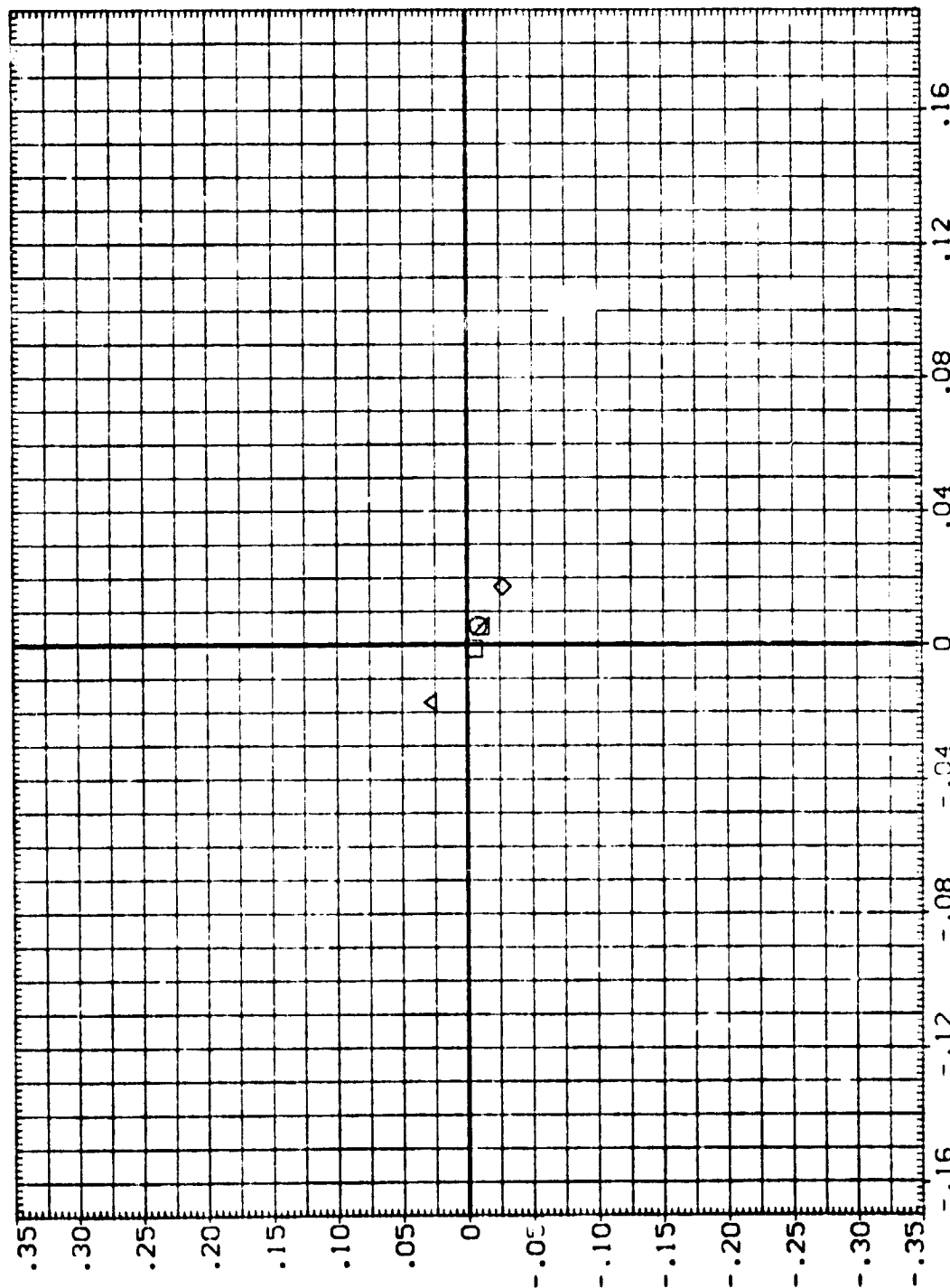


FIG. 29 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=0/0
(A) ALPHA = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDRK	REFERENCE INFORMATION
(LET042)	AMES97-019(IAB1) LVAP CRBITTER-ALL ML SEALED	.000	.000	2.500	.000	SREF 2690.0000 SQ.FT.
(LET142)	AMES97-019(IAB1) LVAP TANK - ALL ML SEALED	.000	.000	2.500	.000	LREF 1297.0000 IN.
(LET142)	AMES97-019(IAB1) LVAP L-SRB - ALL ML SEALED	.000	.000	2.500	.000	BREF 1297.0000 IN.
(LET142)	AMES97-019(IAB1) LVAP R-LRB - ALL ML SEALED	.000	.000	2.500	.000	XMRP 976.0000 IN.
(LET142)	AMES97-019(IAB1) LVAP INT VEH ALL ML SEALED	.000	.000	2.500	.000	YMRP .0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

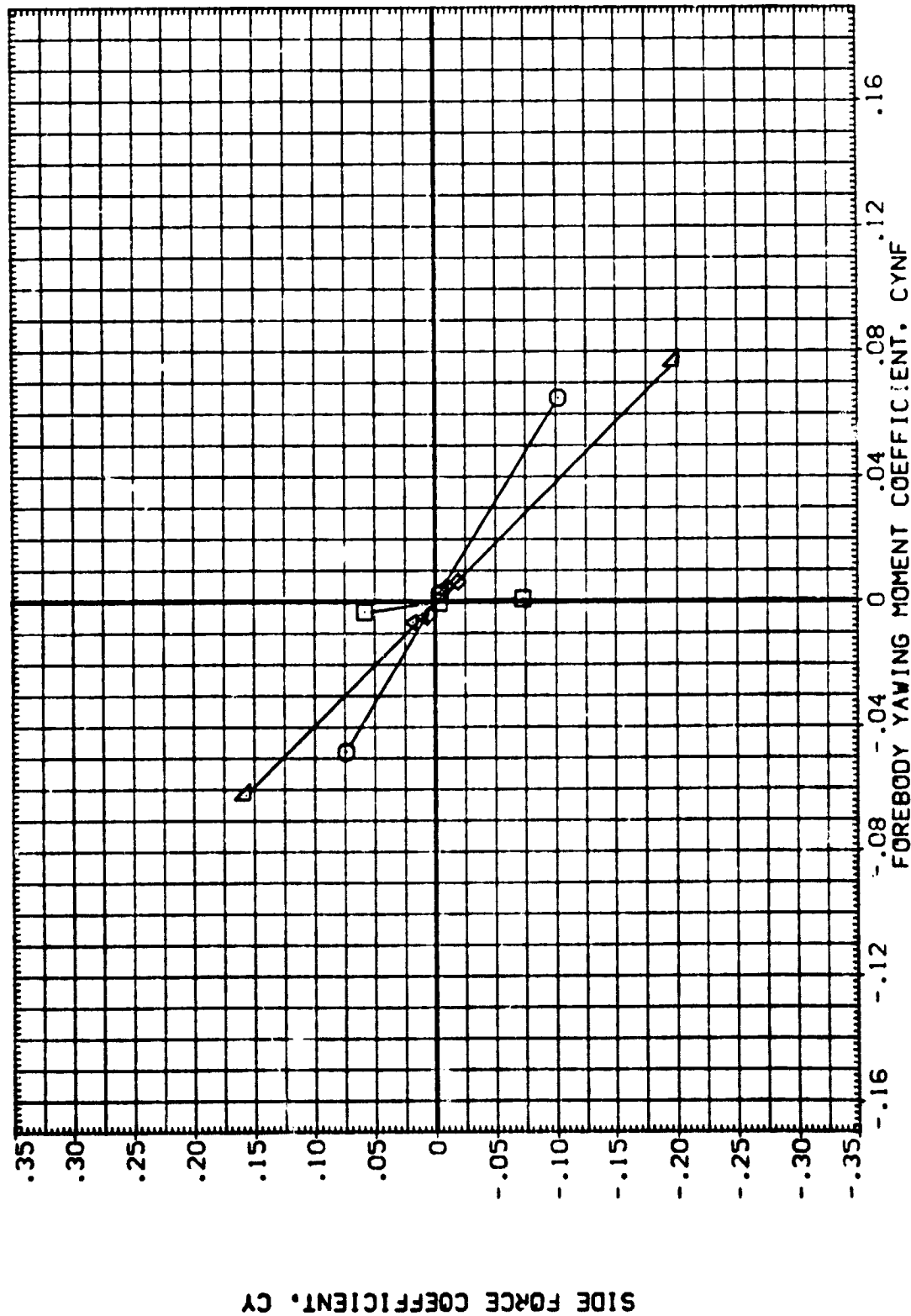


FIG. 29 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=0/0

(B) ALPHA = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-03	MACH	SPDRK	REFERENCE INFORMATION
(LE1042)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	.000	.000	2.500	.000	SREF 2690.0000 SQ.FT.
(LE1142)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.500	.000	LREF 1297.0000 IN.
(LE1242)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.500	.000	BREF 1297.0000 IN.
(LE1342)	AMES97-019(IAB1) LVAP R-LPB - ALL HL SEALED	.000	.000	2.500	.000	XMRP 976.0000 IN.
(LE142)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.500	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

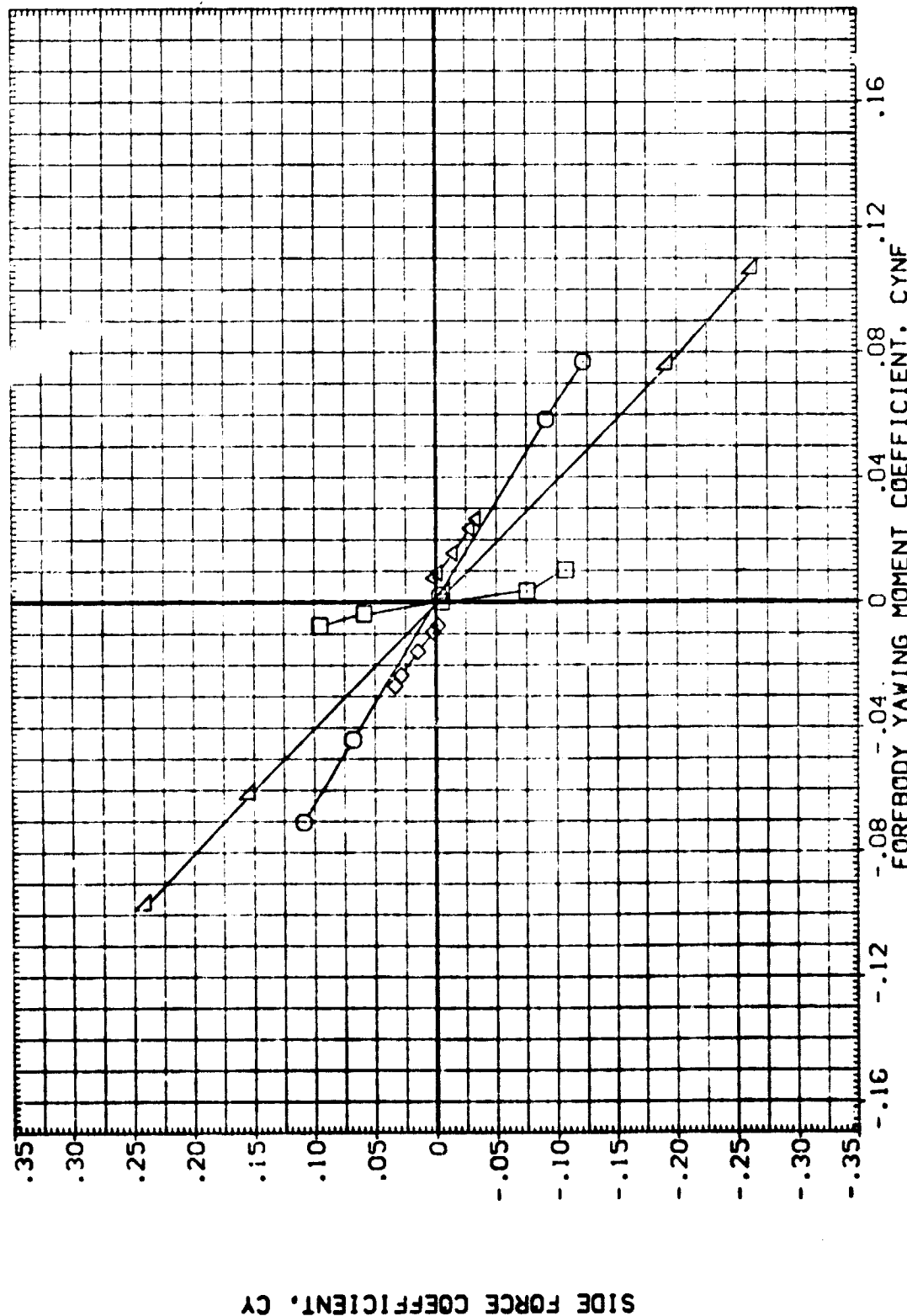


FIG. 29 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=0/0
(C)ALPHA= .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(LETO42)	APES97-019C(IAB1) LVAP CRBITER-ALL ML SEALED	.000	.000	2.500	.000	SREF 2690.0000 SQ.FT.
(LETT42)	APES97-019C(IAB1) LVAP TANK - ALL ML SEALED	.000	.000	2.500	.000	LREF 1297.0000 IN.
(LETL42)	APES97-019C(IAB1) LVAP L-SRB - ALL ML SEALED	.000	.000	2.500	.000	BREF 1297.0000 IN.
(LETR42)	APES97-019C(IAB1) LVAP R-LRB - ALL ML SEALED	.000	.000	2.500	.000	XMRP 976.0000 IN. XT
(LETT42)	APES97-019C(IAB1) LVAP INT VEM ALL ML SEALED	.000	.000	2.500	.000	YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0370

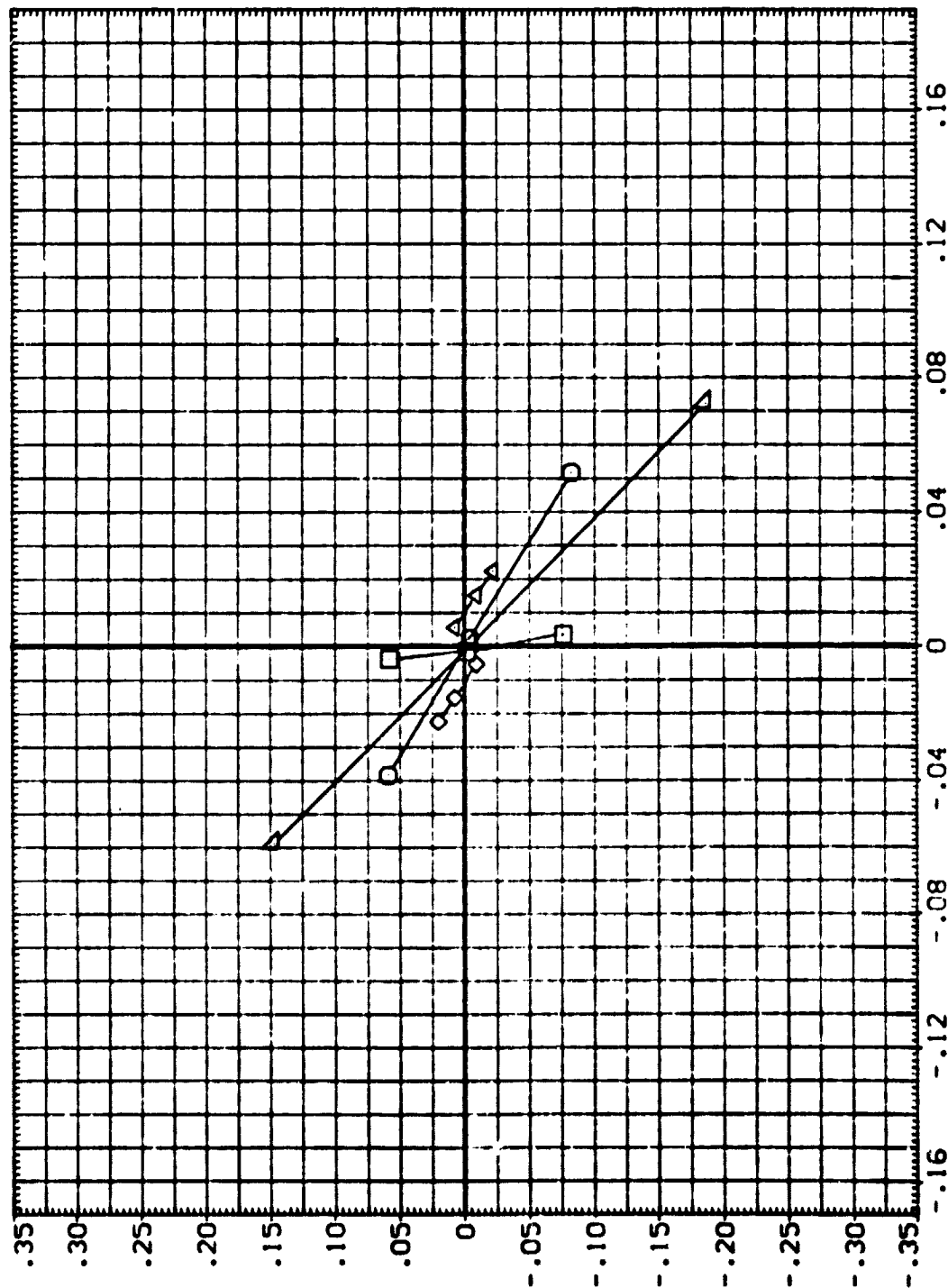


FIG. 29 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS. M=2.5 DEV=0/0

(O) ALPHA= 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPCBK	REFERENCE INFORMATION
(LETR42)	AME597-0191(AB1) LVAP CRR1TER-ALL HL SEALED	.000	.000	2.500	.000	SREF 2690.0000 SO.FT.
(LETR42)	AME597-0191(AB1) LVAP TANK - ALL HL SEALED	.000	.000	2.500	.000	LREF 1297.0000 IN.
(LETR42)	AME597-0191(AB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.500	.000	BREF 1297.0000 IN.
(LETR42)	AME597-0191(AB1) LVAP R-SRB - ALL HL SEALED	.000	.000	2.500	.000	XREF 976.0000 IN.
(LETR42)	AME597-0191(AB1) LVAP INT VEH - ALL HL SEALED	.000	.000	2.500	.000	Z-REF 400.0000 IN.
(LETR42)						SCALE .0300

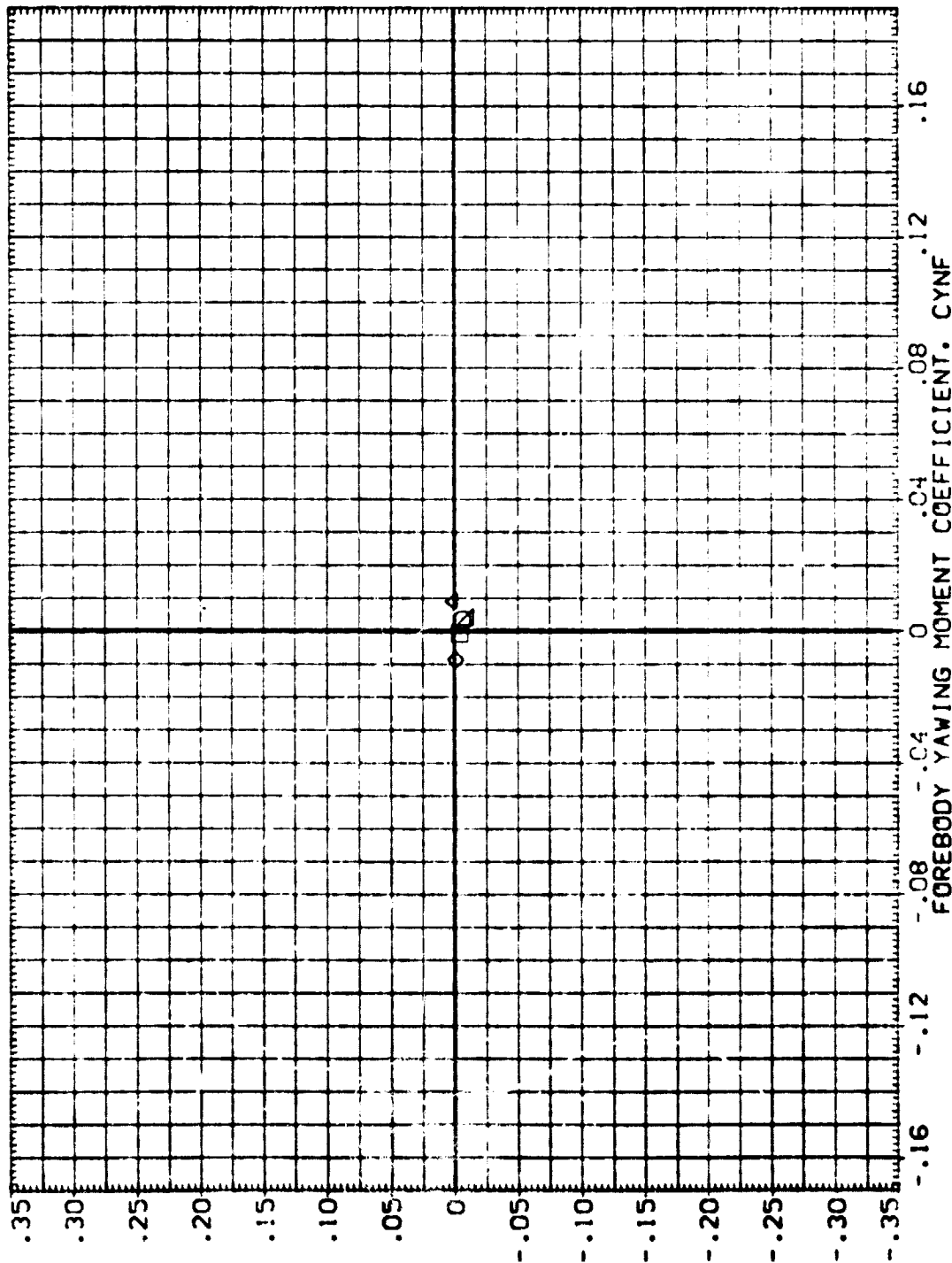


FIG. 29 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=0/0
(E)ALPHA= 6.00 PAGE 742

SIDE FORCE COEFFICIENT, CY

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(LE1042)	AMES37-019(1A81) LVAP ORBITER-ALL ML SEALED	.000	.000	2.500	.000	SREF 2690.0000 SQ.FT.
(LE1142)	AMES37-019(1A81) LVAP TANK - ALL ML SEALED	.000	.000	2.500	.000	LREF 1297.0000 IN.
(LE1242)	AMES37-019(1A81) LVAP L-SRB - ALL ML SEALED	.000	.000	2.500	.000	BREF 1297.0000 IN.
(LE1342)	AMES37-019(1A81) LVAP R-LRB - ALL ML SEALED	.000	.000	2.500	.000	XTRP 976.0000 IN.
(LE1442)	AMES37-019(1A81) LVAP INT VEH ALL ML SEALED	.000	.000	2.500	.000	YTRP 400.0000 IN.
						ZTRP 400.0000 IN.
						SCALE .0300

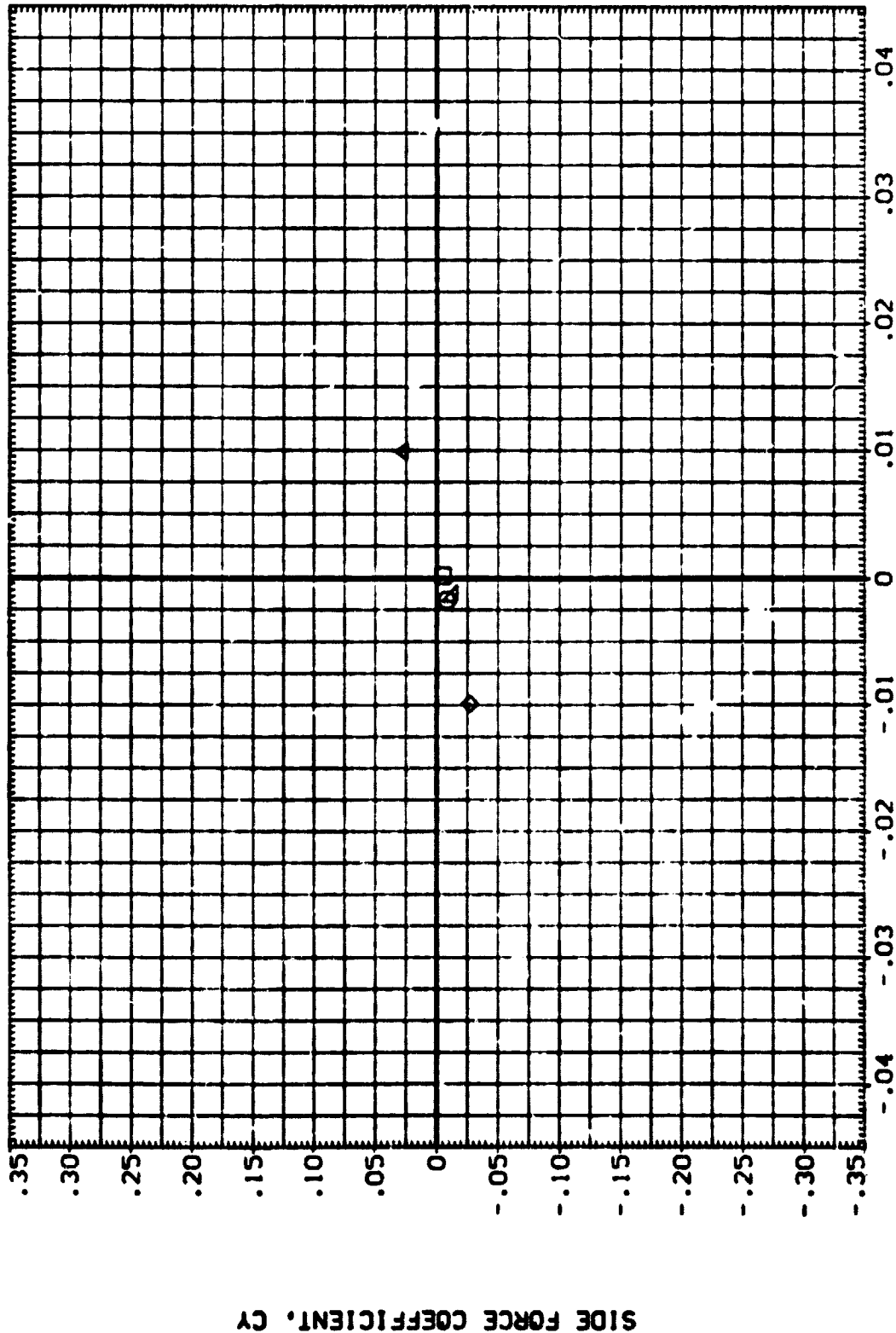


FIG. 29 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=0/0
 (ALPHA) = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-CB	MACH	SPDBRK	REFERENCE INFORMATION
(LETT042)	APES97-0191(AB1) LVAP ORBITER-ALL ML SEALED	.000	.000	2.500	.000	SREF 2690.0000 SQ.FT.
(LETT142)	APES97-0191(AB1) LVAP TANK - ALL ML SEALED	.000	.000	2.500	.000	LREF 1297.0000 IN.
(LETTL42)	APES97-0191(AB1) LVAP L-CRB - ALL ML SEALED	.000	.000	2.500	.000	BREF 1297.0000 IN.
(LETT42)	APES97-0191(AB1) LVAP R-LRC - ALL ML SEALED	.000	.000	2.500	.000	YARP 976.0000 IN.
(LETT142)	APES97-0191(AB1) LVAP INT VEM ALL ML SEALED	.000	.000	2.500	.000	YMRP 400.0000 IN.
						SCALE 1.0000

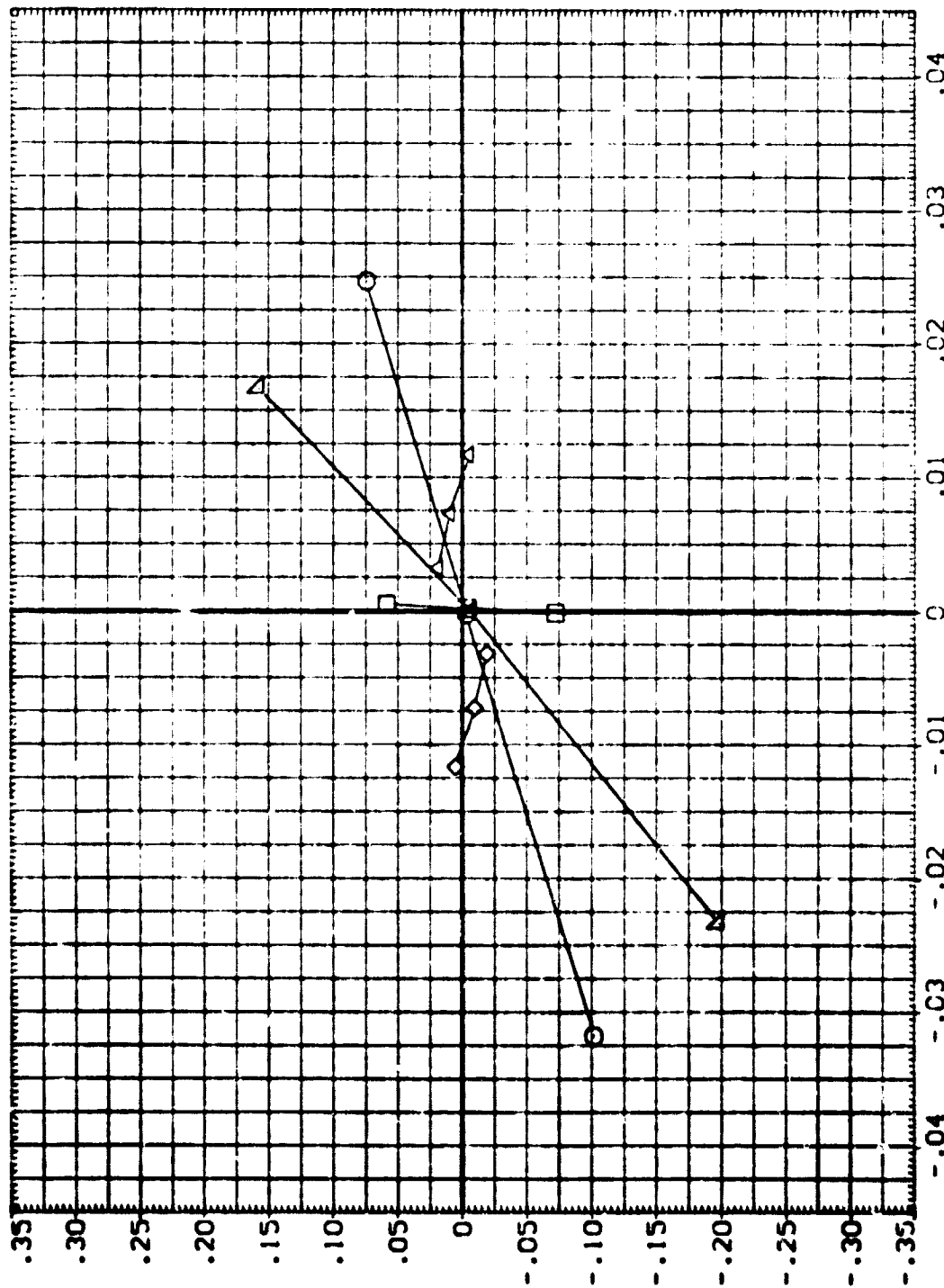


FIG. 29 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=0/0
 (B) ALPHA1 = -4.00 PAGE 744

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDRK	REFERENCE INFORMATION
(LE1042)	AMES97-019(IAB1) LVAP ORBITTER-ALL HL SEALED	.000	.000	2.500	.000	SREF 2690.0000 SQ.FT.
(LE1142)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.500	.000	LREF 1297.0000 IN.
(LE1242)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.500	.000	BREF 1297.0000 IN.
(LE1342)	AMES97-019(IAB1) LVAP R-LRB ALL HL SEALED	.000	.000	2.500	.000	YMRP 976.0000 IN.
(LE1442)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.500	.000	ZMRP 400.0000 IN.
						SCALE .0300

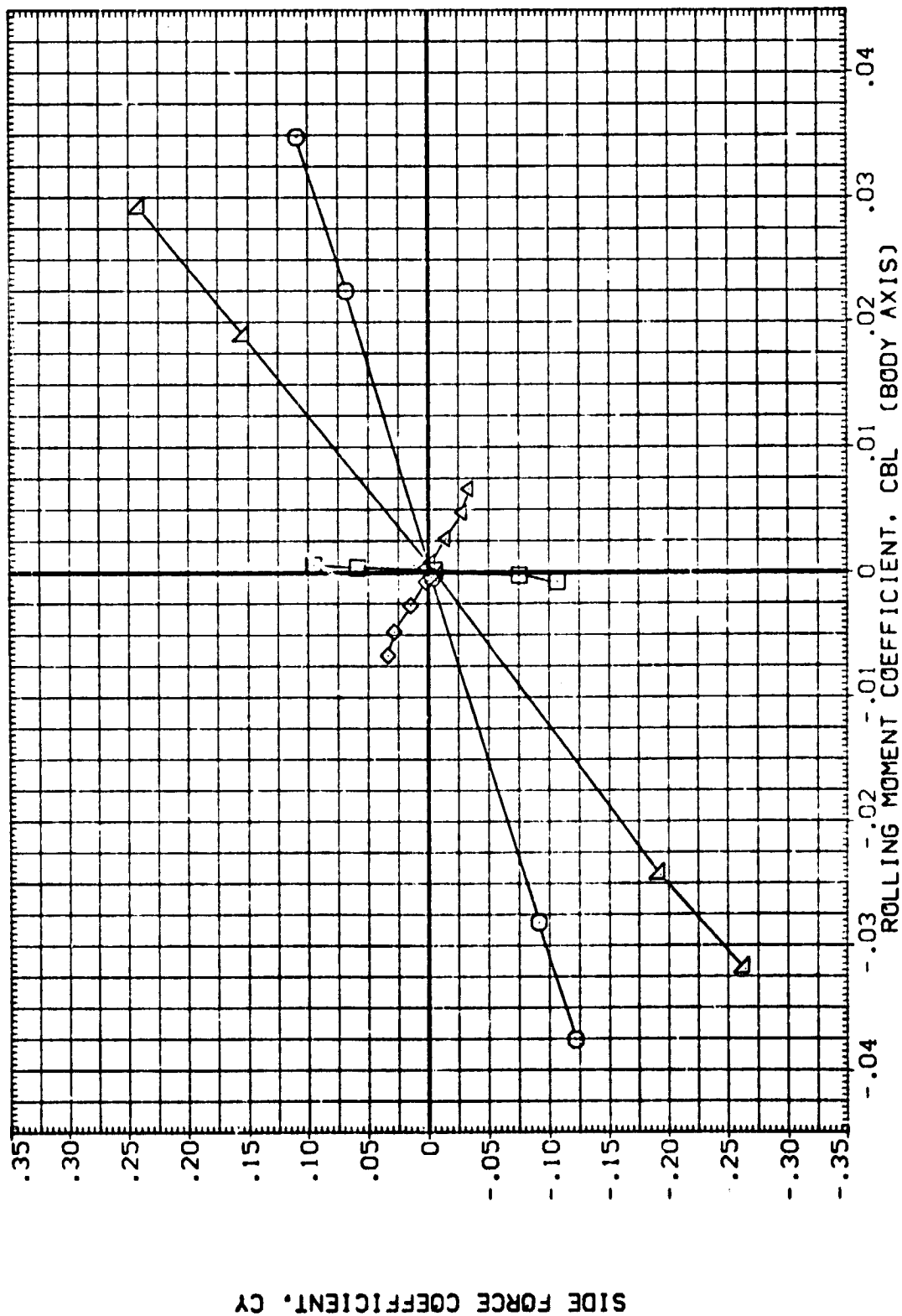


FIG. 29 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=0/0
 (C)ALPHA= .00 PAGE 745

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-05	MACH	SPDRK	REFERENCE INFORMATION
(LETC42)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	.000	.000	2.500	.000	SKEF 2690.0000 SQ.FT.
(LETC42)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.500	.000	LoEF 1297.0000 IN.
(LETC42)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.500	.000	B-REF 1297.0000 IN.
(LETC42)	AMES97-019(IAB1) LVAP R-1RB ALL HL SEALED	.000	.000	2.500	.000	XMRP 976.0000 IN.
(LETC42)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.500	.000	ZMRP 400.0000 IN.
						SCALE .0300

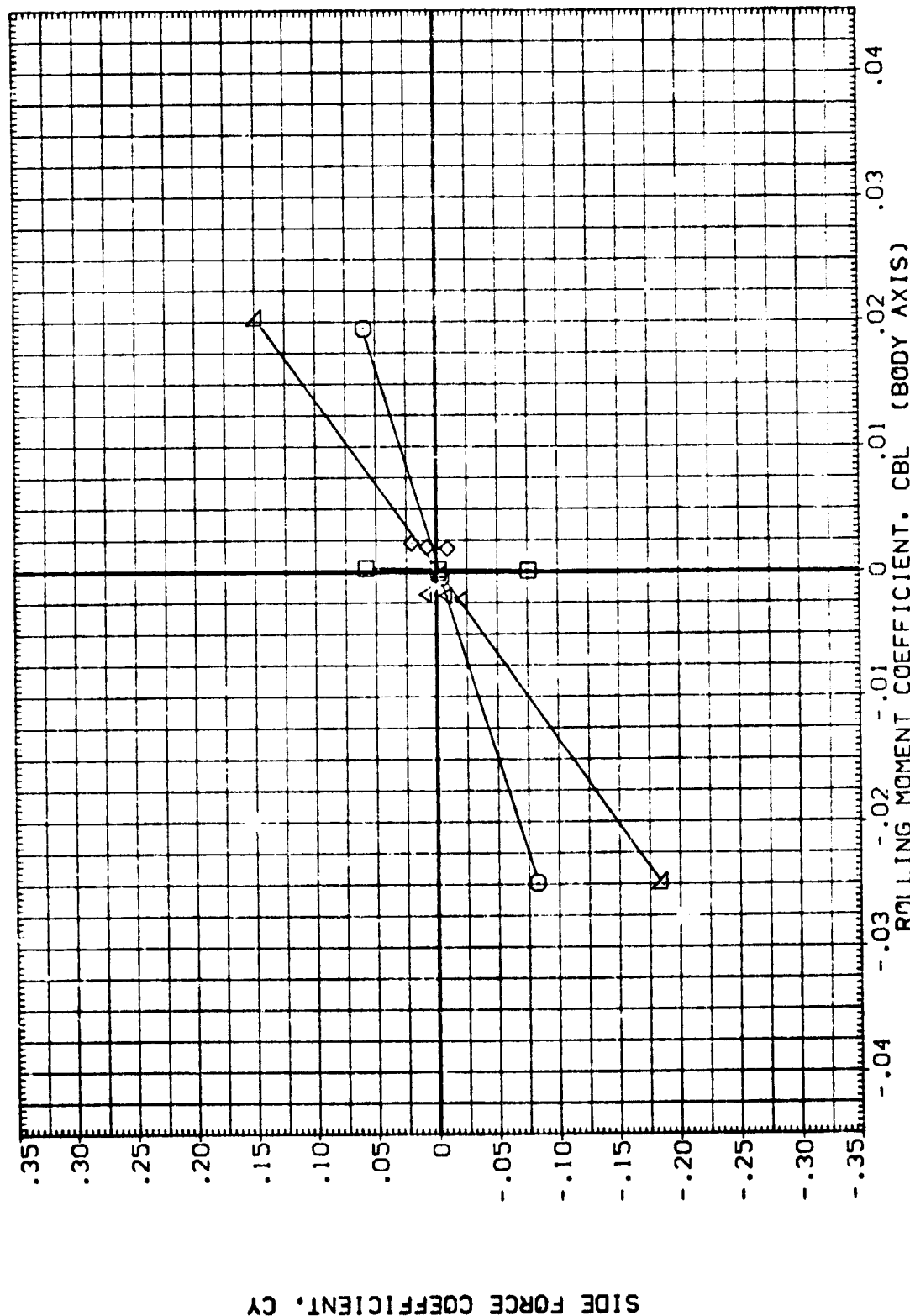


FIG. 29 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=0/0
 (D)ALPHA= 4.00 PAGE 746

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION			
(LE1042)	AMES97-019(IAB1) LVAP CRBITER-ALL HL SEALED	.000	.000	2.500	.000	SREF	2690.0000	SO.FT.	
(LE1142)	AMES97-019(IAB1) LVAP TANK - ALL HL SEALED	.000	.000	2.500	.000	LREF	1297.0000	IN.	
(LE1242)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.500	.000	BREF	1297.0000	IN.	XT
(LE1342)	AMES97-019(IAB1) LVAP R-LRB - ALL HL SEALED	.000	.000	2.500	.000	XMRP	976.0000	IN.	YT
(LE1442)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	.000	.000	2.500	.000	ZMRP	400.0000	IN.	ZT
						SCALE	.0300		

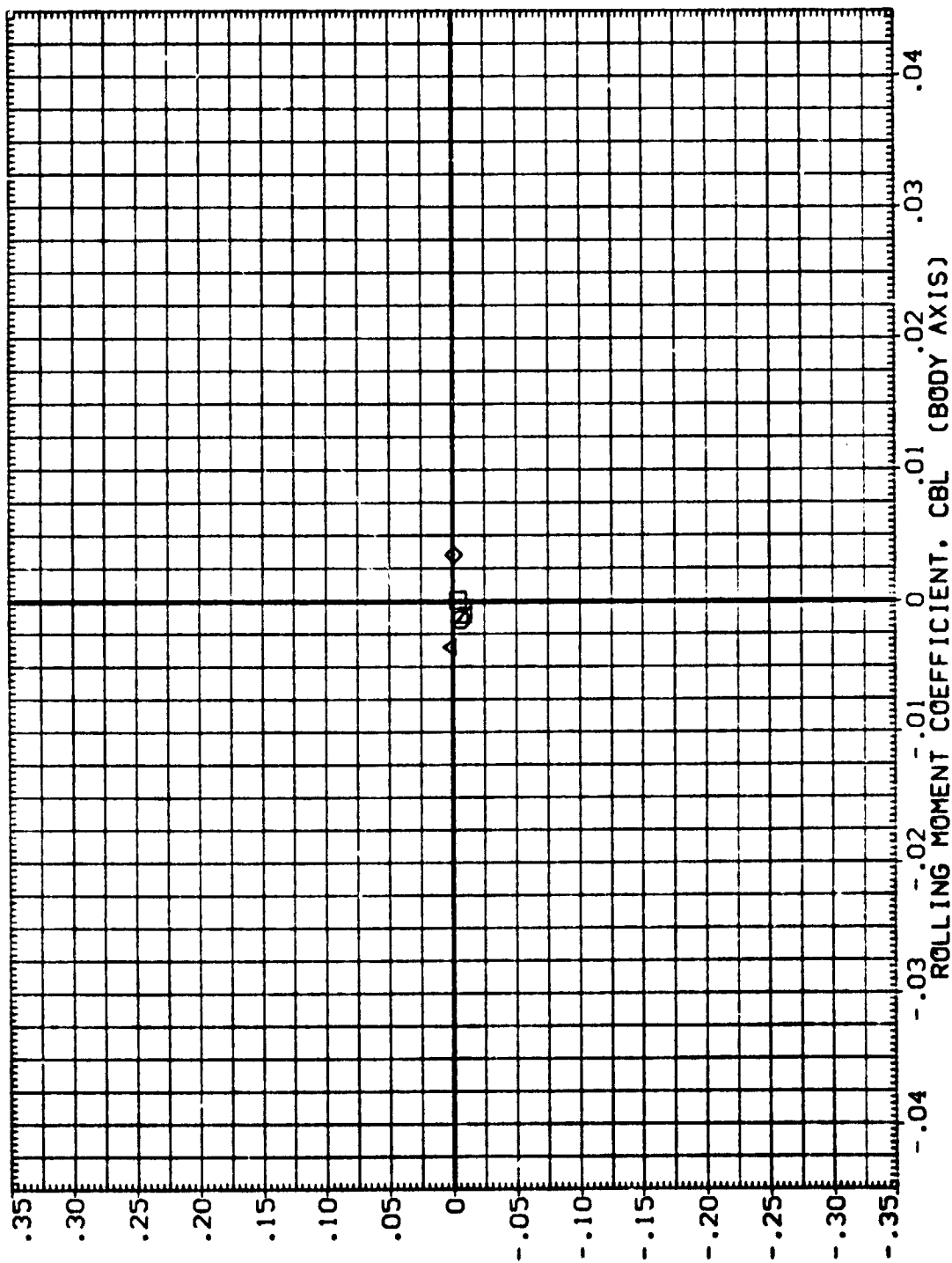


FIG. 23 LATERAL-DIRECTIONAL CHAR. OF LAUNCH VEHICLE COMPONENTS, M=2.5 DEV=0/0
(E)ALPHA= 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPO3RK	REFERENCE INFORMATION
(METH35)	APES97-0191(A81) LVAP	8.000	-4.000	1.550	.000	SREF 2690.0000 SQ.F.T.
(METH43)	APES97-0191(A81) LVAP	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(METH45)	APES97-0191(A81) LVAP	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(METH39)	APES97-0191(A81) LVAP	.000	.000	1.550	.000	XMRP 976.0000 IN.
						YMRP .00 IN.
						ZMRP 400.00 IN.
						SCALE .0300

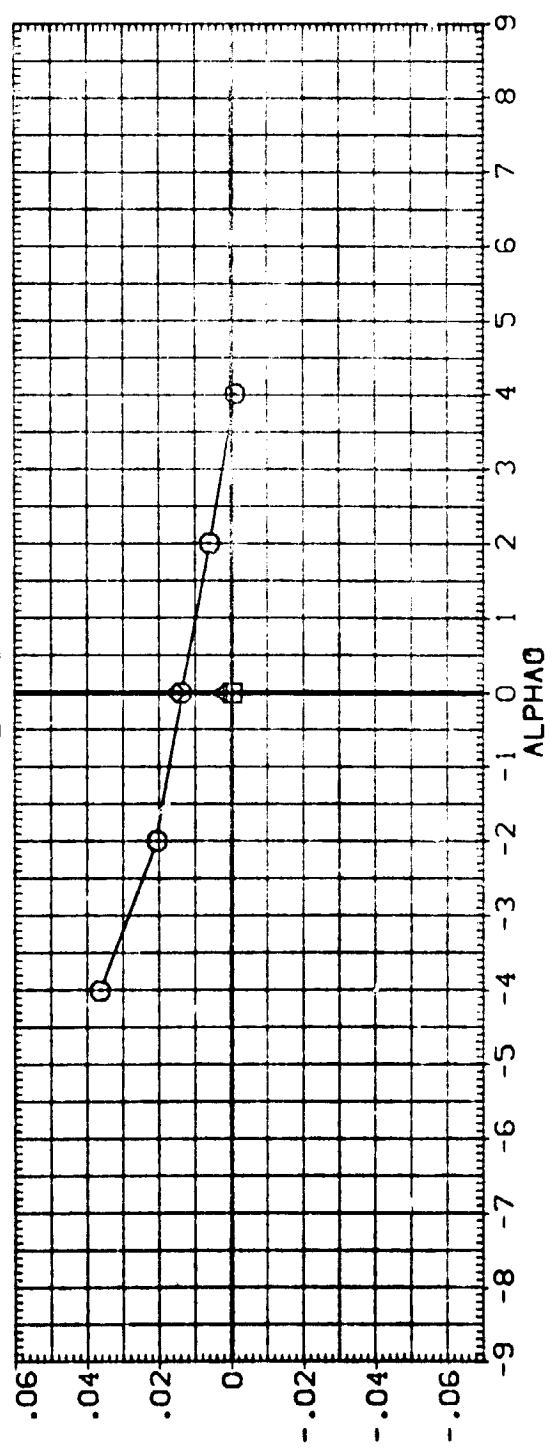
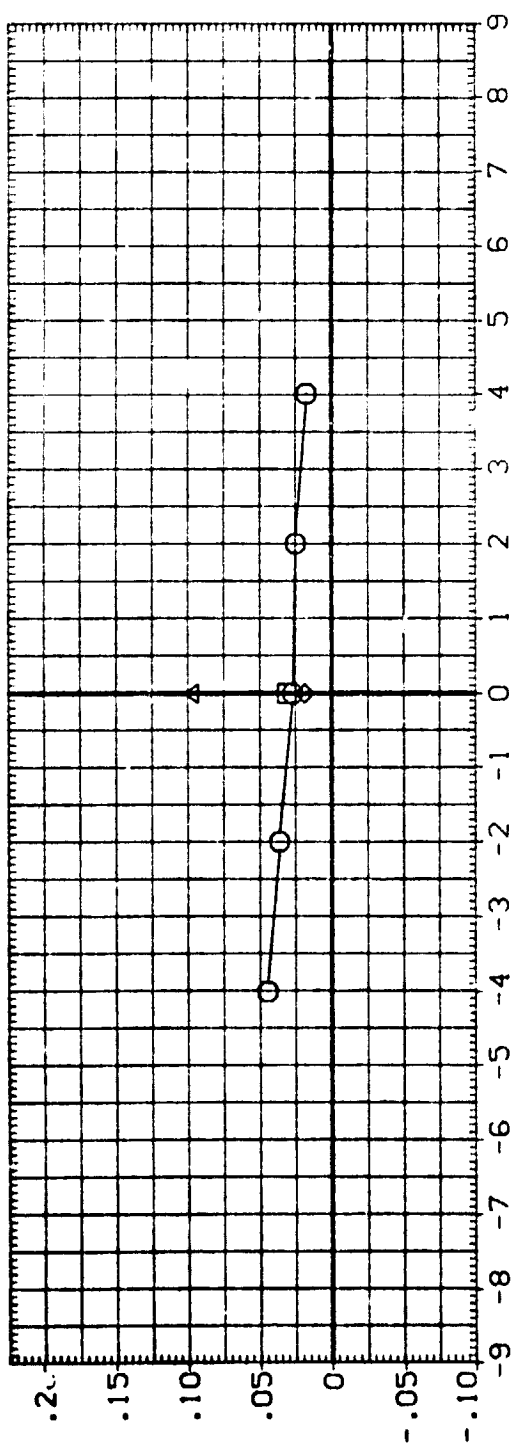


FIG. 30 ELEVON HINGE MOMENT COEFFICIENTS, M=1.55

(A)BETA0 = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDRBK	REFERENCE INFORMATION
(METH25)	APES97-019(IAB1) LVAP	8.000	-4.000	1.550	.000	SREF 2690.0000 SO.FT.
(METH42)	APES97-019(IAB1) LVAP	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(METH46)	APES97-019(IAB1) LVAP	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(METH49)	APES97-019(IAB1) LVAP	.000	.000	1.550	.000	XMRP 976.0000 IN. XT
						ZMRP .0000 IN. YT
						SCALE 400.0000 IN. ZT

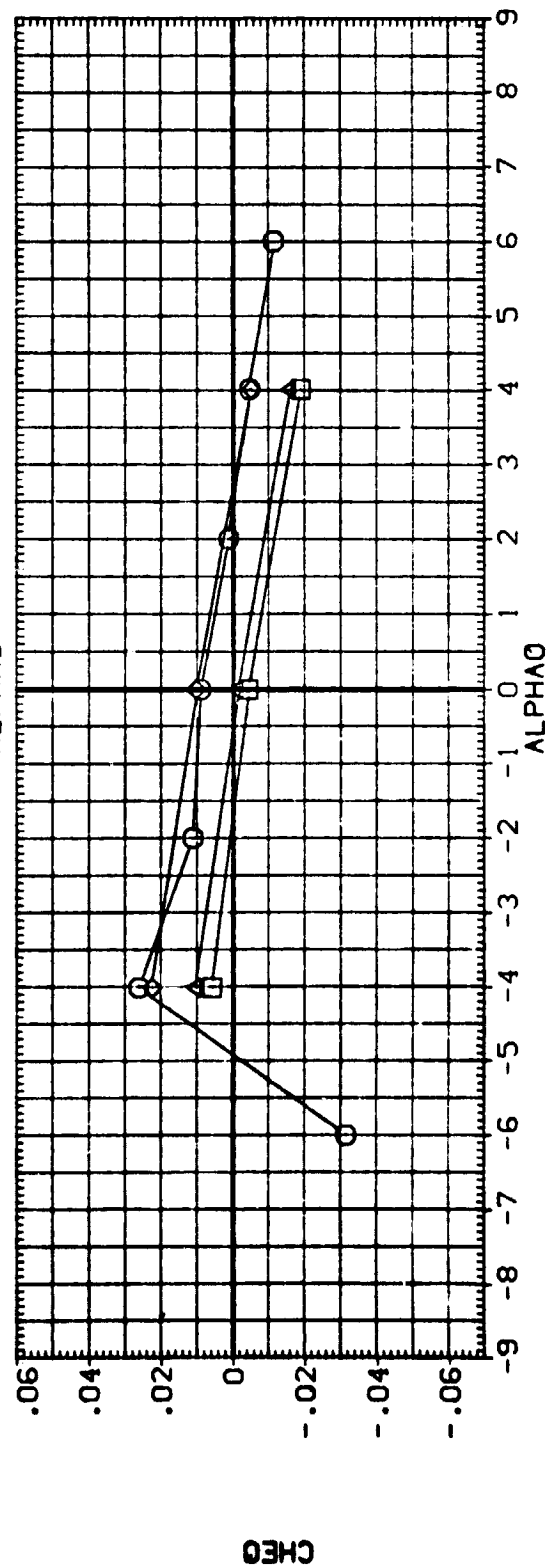
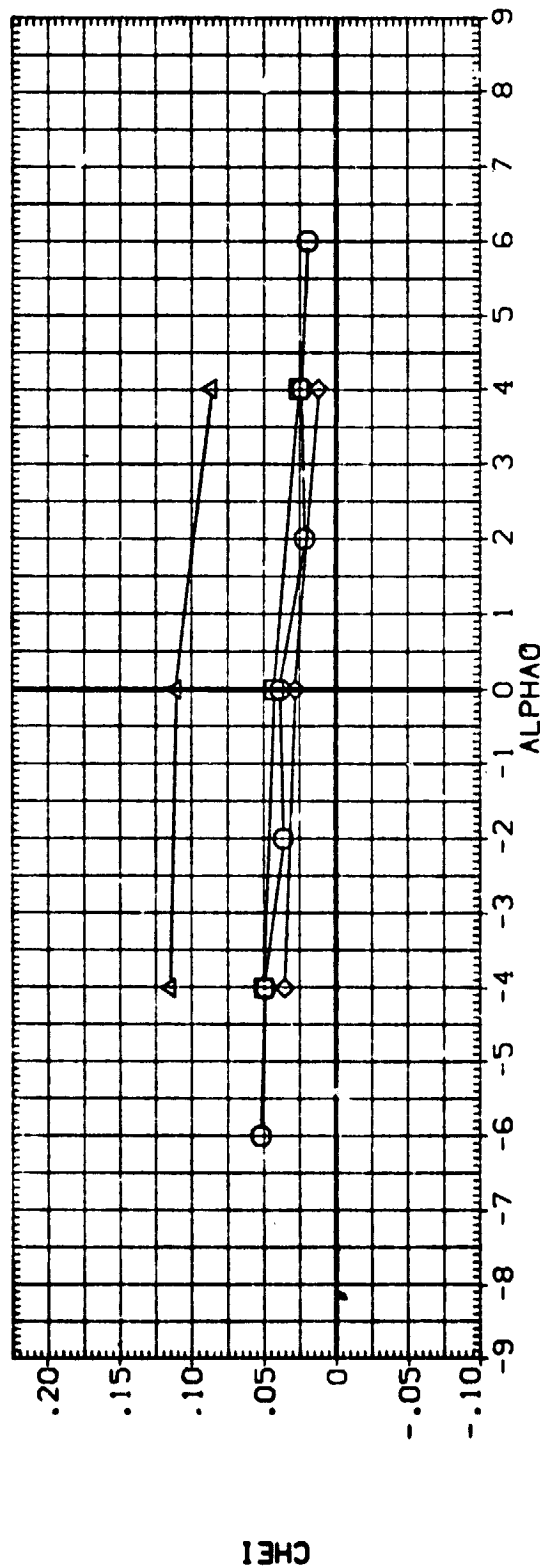


FIG. 30 ELEVON HINGE MOMENT COEFFICIENTS, $M=1.55$

(B)BETAO = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRBK	REFERENCE INFORMATION
(METH33)	AMES97-019(IAB1) LVAP	8.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(METH43)	AMES97-019(IAB1) LVAP	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(METH46)	AMES97-019(IAB1) LVAP	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(METH39)	DATA NOT AVAILABLE	.000	.000	1.550	.000	XMRP .0000 IN.
						YMRP .0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

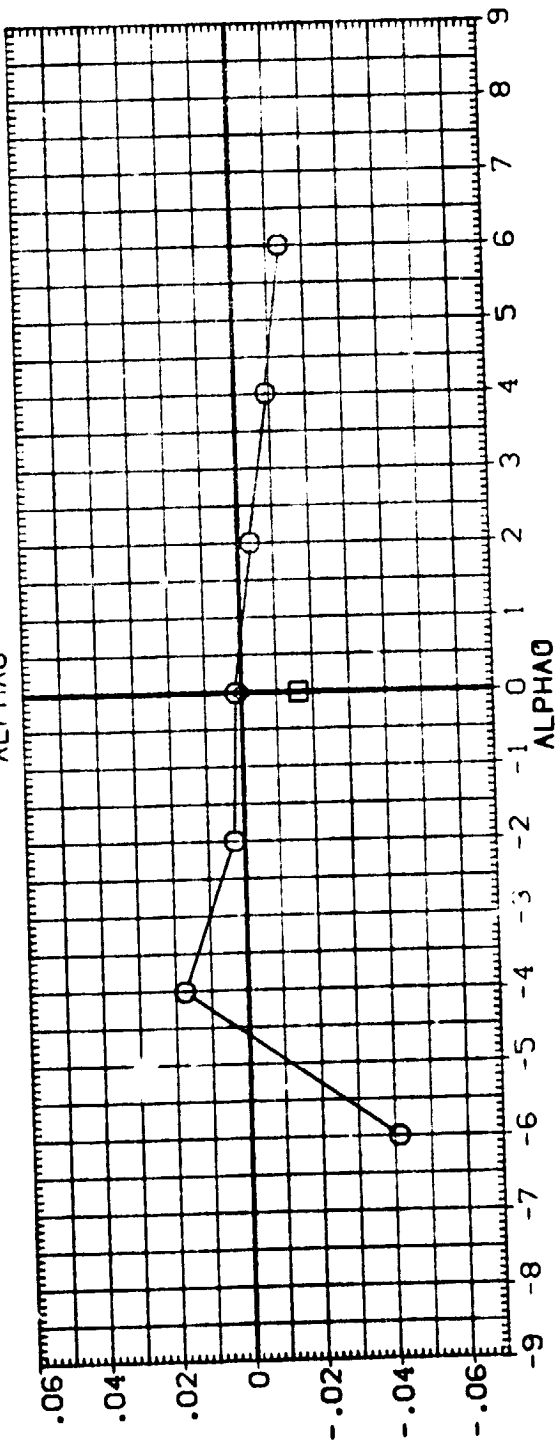
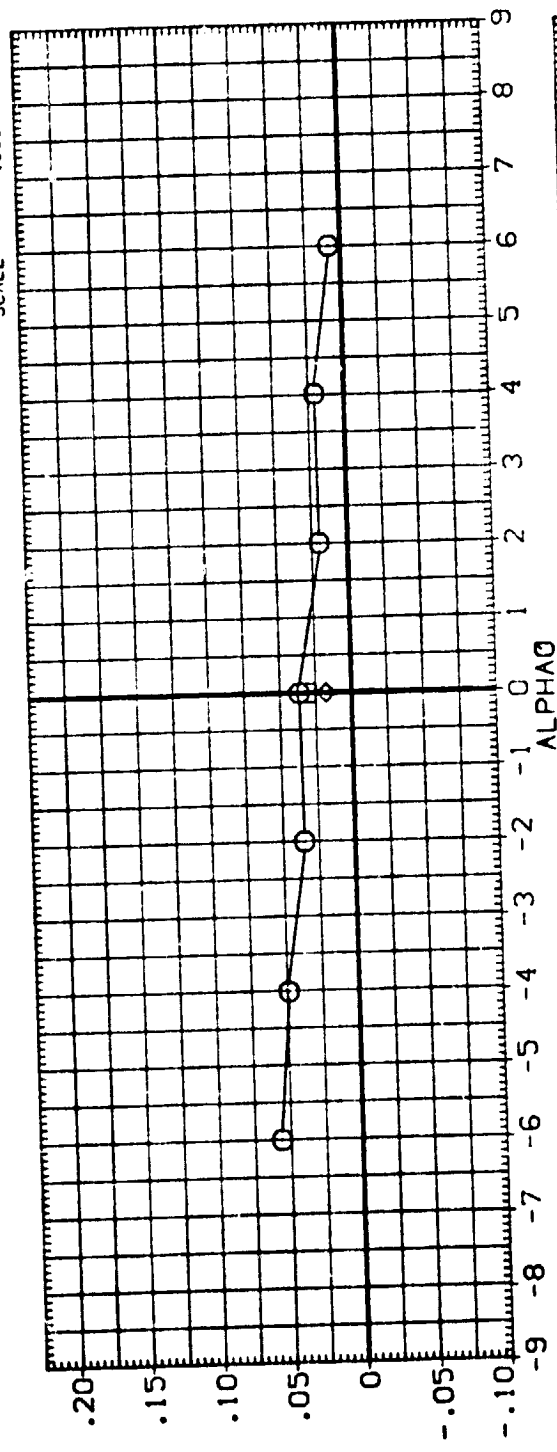


FIG. 30 ELEVON HINGE MOMENT COEFFICIENTS, $M=1.55$

(C)BETA0 = -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(METM35)	AMES97-019(IAB1) LVAP	8.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(METM43)	AMES97-019(IAB1) LVAP	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(METM45)	AMES97-019(IAB1) LVAP	10.000	-4.000	1.550	.000	BREF 1297.0000 IN.
(METM39)	AMES97-019(IAB1) LVAP	.000	.000	1.550	.000	XHREF 976.0000 IN.
						YHREF 400.0000 IN.
						ZHREF 400.0000 IN.
						SCALE .0300

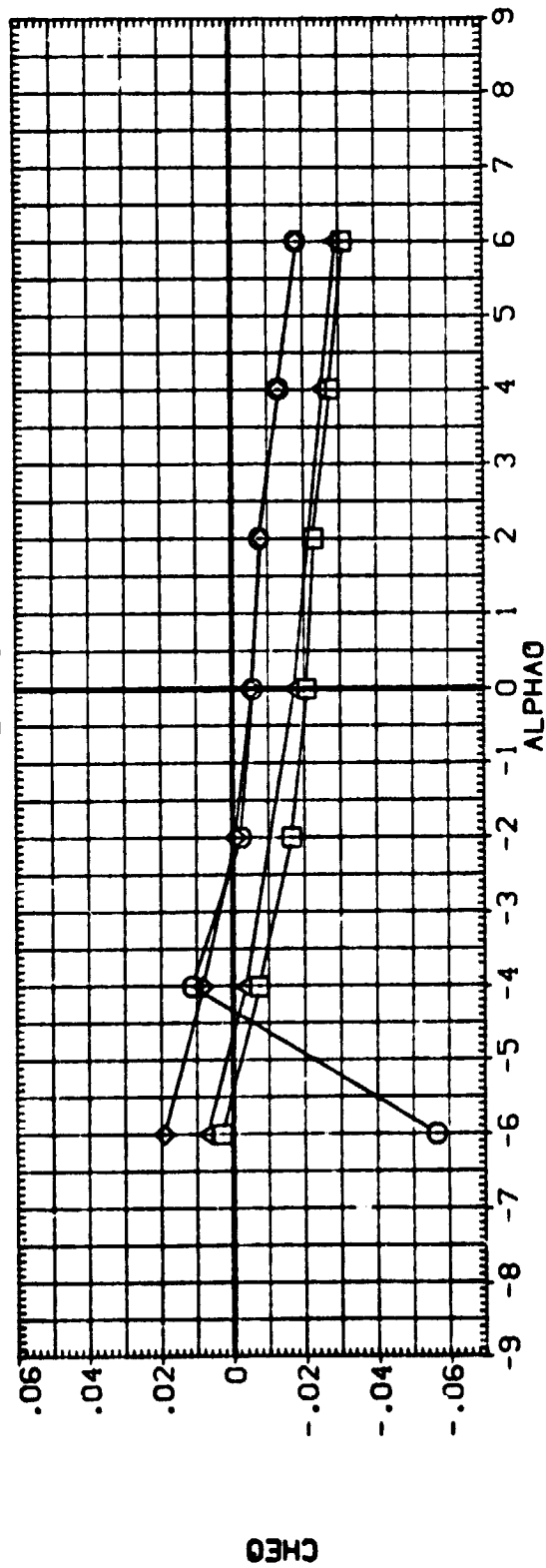
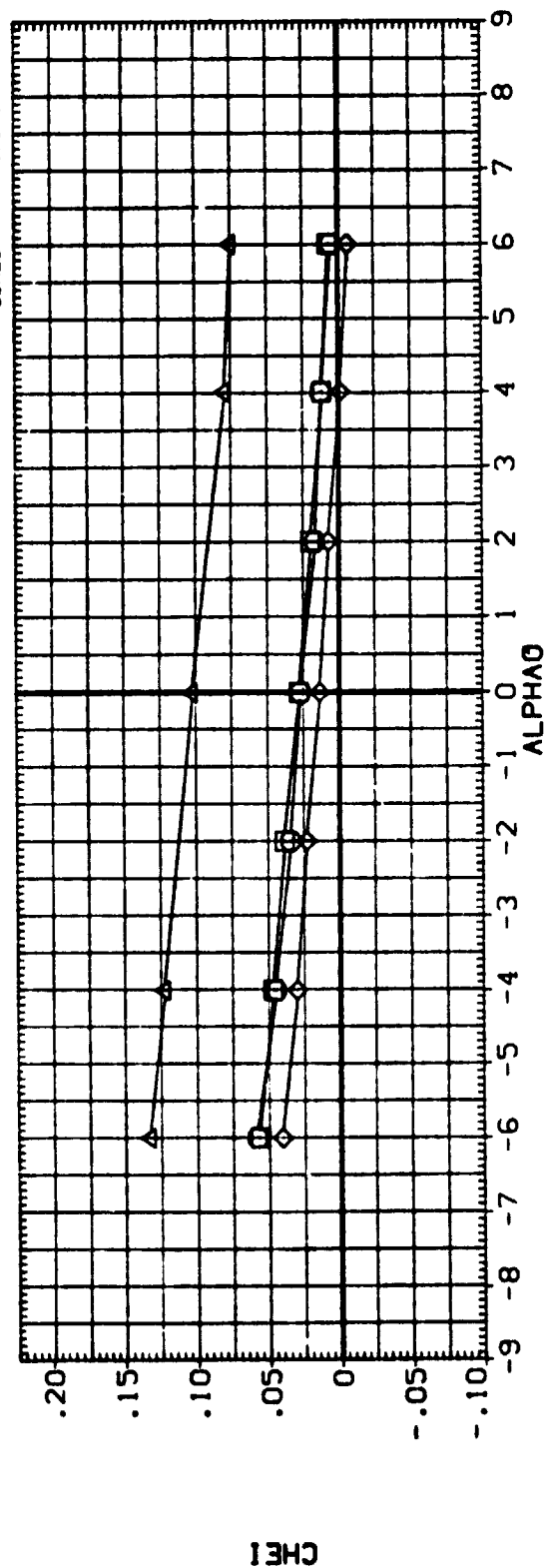


FIG. 30 ELEVON HINGE MOMENT COEFFICIENTS, $M=1.55$

(DBET)0 = .00

DATA SET SYMBOL CONFIGURATION DESCRIPTION ELV-1B ELV-0B MACH SPD8RK REFERENCE INFORMATION

(METH35)	AMES97-019(IAB1) LVAP ORBITTER-ALL HL SEALED	8.000	-4.000	1.550	.000	SREF	2690.0000	53. FT.
(METH43)	AMES97-019(IAB1) LVAP ORBITTER-ALL HL SEALED	8.000	.000	1.550	.000	LREF	1297.0000	IN.
(METH46)	AMES97-019(IAB1) LVAP ORBITTER-ALL HL SEALED	10.000	-4.000	1.550	.000	BREF	1297.0000	IN.
(METH39)	DATA NOT AVAILABLE	.000	.000	1.550	.000	XMRP	976.0000	IN. XT
						YMRP	.0000	IN. YT
						ZMRP	400.0000	IN. ZT
						SCALE	.0300	

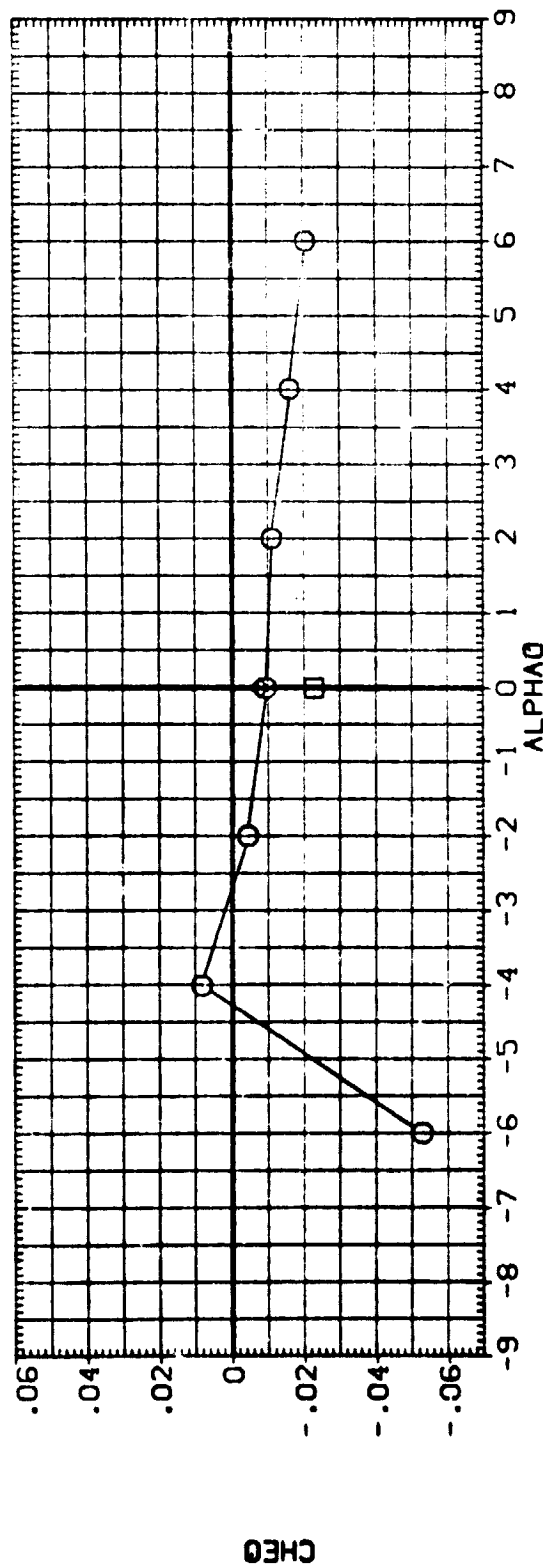
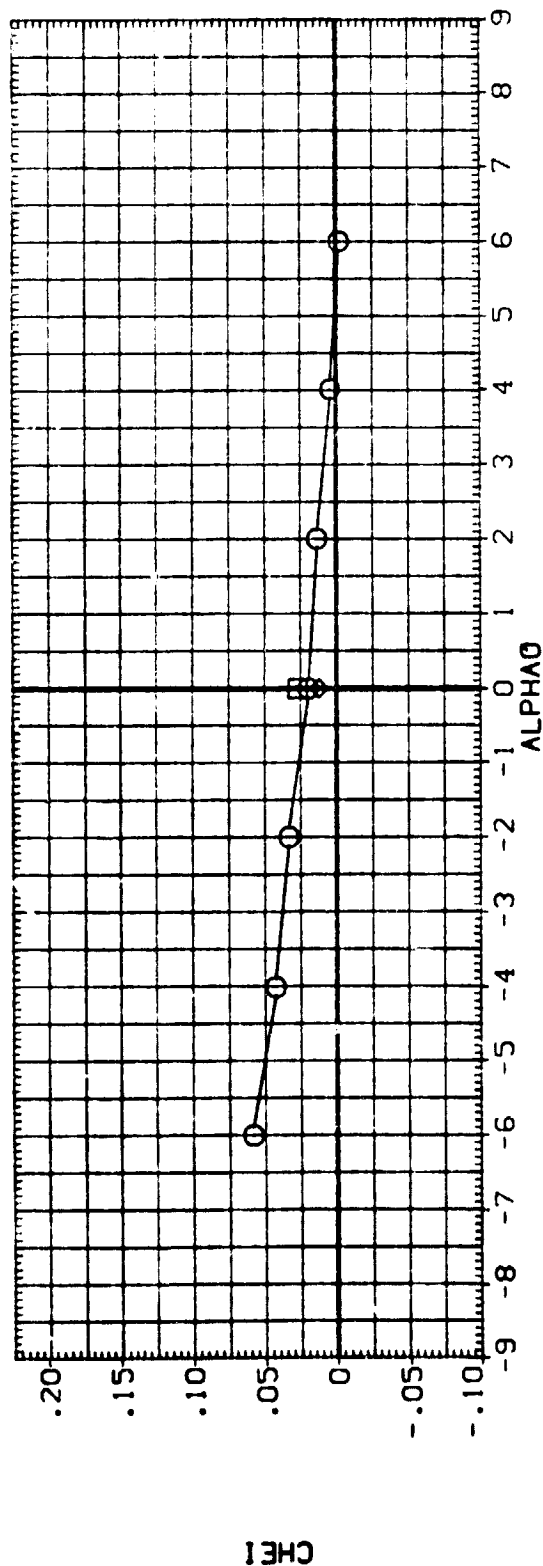


FIG. 30 ELEVON HINGE MOMENT COEFFICIENTS, $M=1.55$

(E)BET.10 = 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(METH35)	AWES97-019(1A81) LVAP	8.000	-4.000	1.550	.000	SREF 2690.0000 SQ.FT.
(METH43)	AWES97-019(1A81) LVAP	8.000	.000	1.550	.000	UREF 1297.0000 IN.
(METH46)	AWES97-019(1A81) LVAP	10.000	-4.000	1.550	.000	UREF 1297.0000 IN.
(METH35)	AWES97-019(1A81) LVAP	.000	.000	1.550	.000	XHREF 976.0000 IN. XT
					ZHREF .0000 IN. YT	
					SCALE 400.0000 IN. ZT	

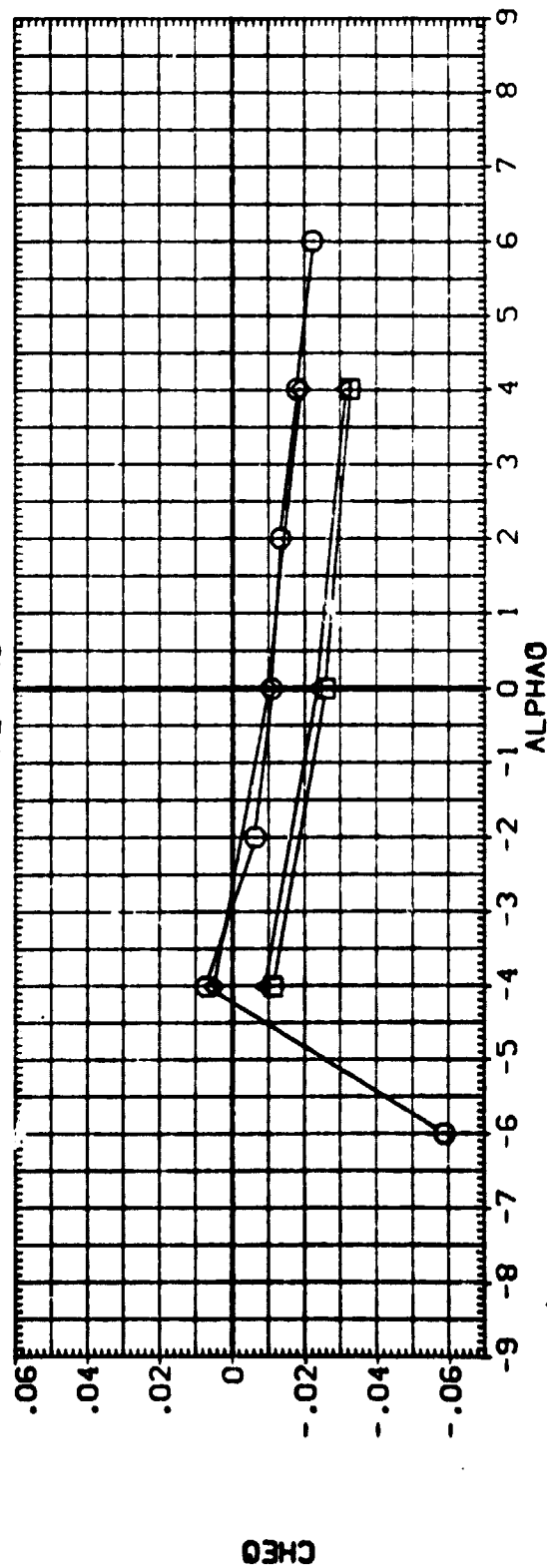
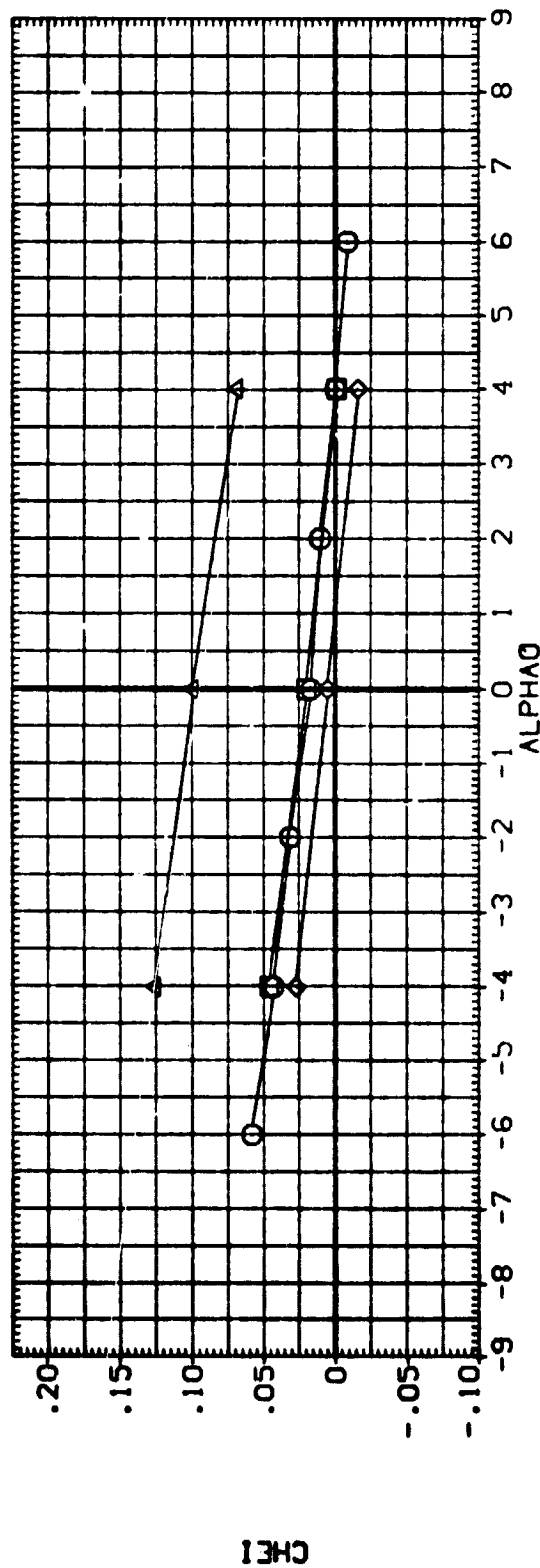


FIG. 30 ELEVON HINGE MOMENT COEFFICIENTS. M=1.55

(F)BETA0 = 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-CB	MACH	SPCBBK	REFERENCE INFORMATION
(METH35)	AME597-019(IAB1) LVAB	8.000	-4.000	1.550	.000	SREF 2690.0000 SO.FT.
(METH43)	AME597-019(IAB1) LVAB	8.000	.000	1.550	.000	LREF 1297.0000 IN.
(METH46)	AME597-019(IAB1) LVAB	10.000	-4.000	1.550	.000	BREF 1297.0000 IN. XT
(METH39)	AME597-019(IAB1) LVAB	.000	.000	1.550	.000	XMRP 976.0000 IN. YT
					ZMRP 400.0000 IN. ZT	
					SCALE .0300	

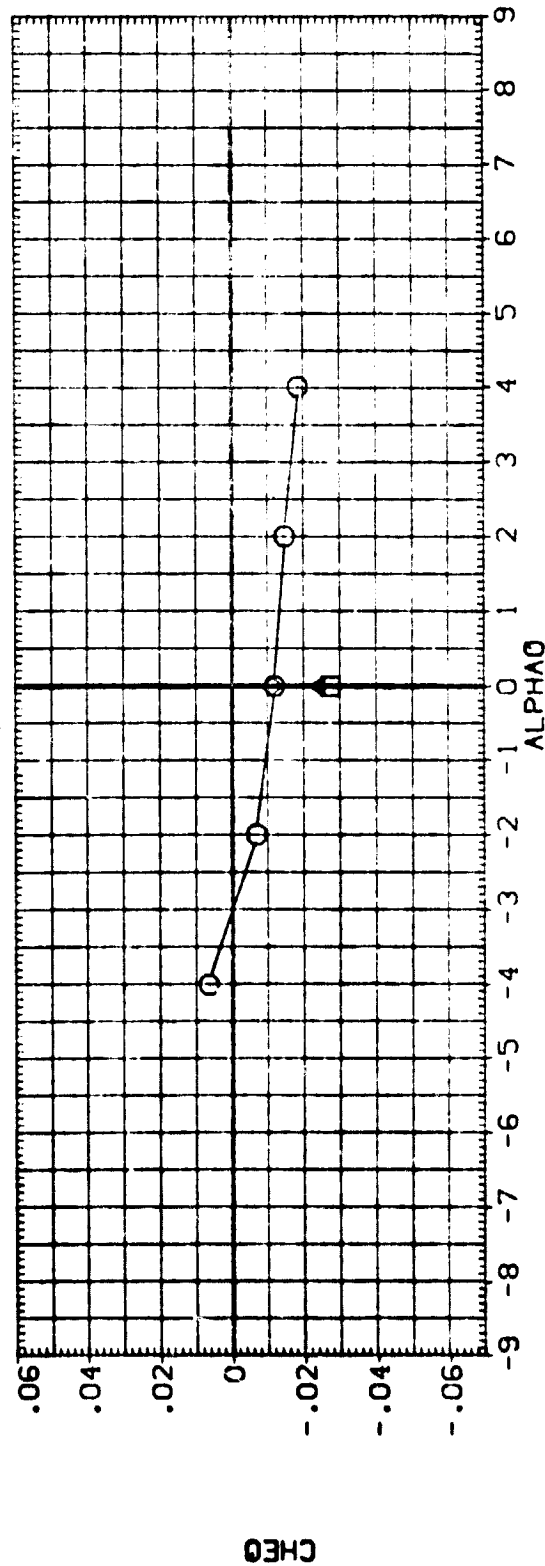
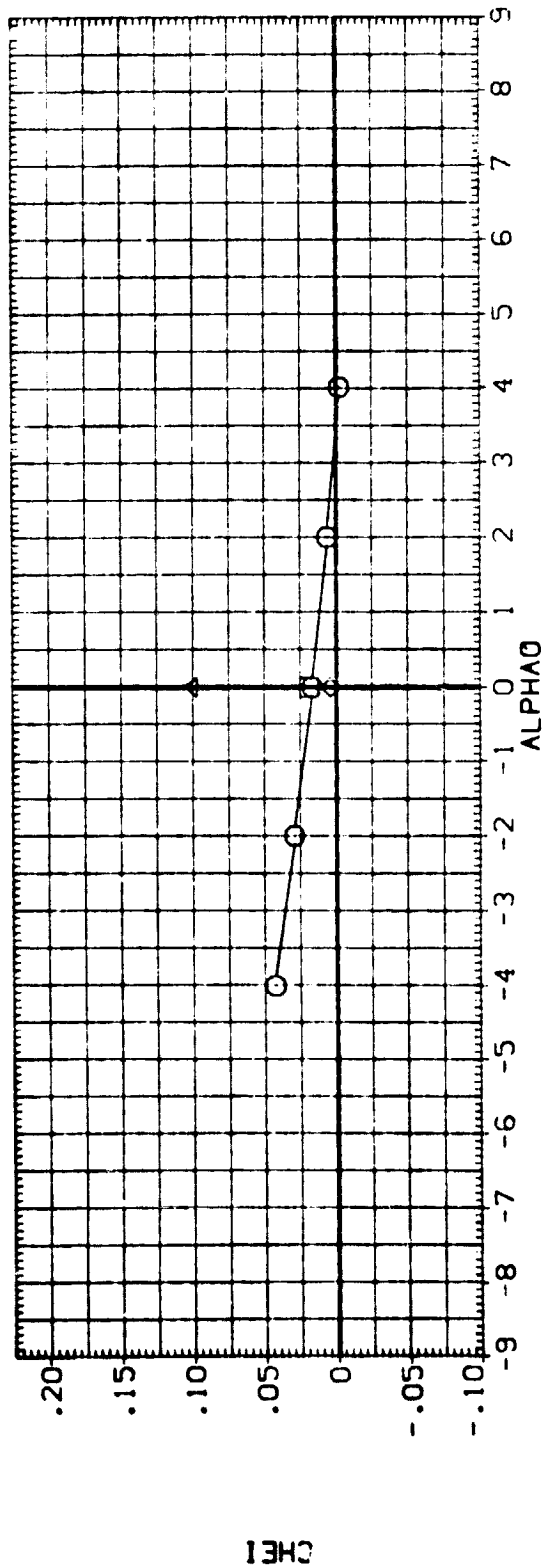


FIG. 30 ELEVON HINGE MOMENT COEFFICIENTS, $M=1.55$
(G)BET.0 = 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-CB	MACH	SPDRK	REFERENCE INFORMATION			
(METM36)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.000	.000	SREF	2690.0000	SO.FT.	
(METM44)	AMES97-019(IAB1) LVAP	8.000	-4.000	2.000	.000	LREF	1297.0000	IN.	
(METM47)	AMES97-019(IAB1) LVAP	10.000	-4.000	2.000	.000	BREF	1297.0000	IN.	XT
(METM40)	AMES97-019(IAB1) LVAP				.070	YMRP	976.0000	IN.	YT
						ZMRP	400.0000	IN.	ZT
						SCALE	.0300		

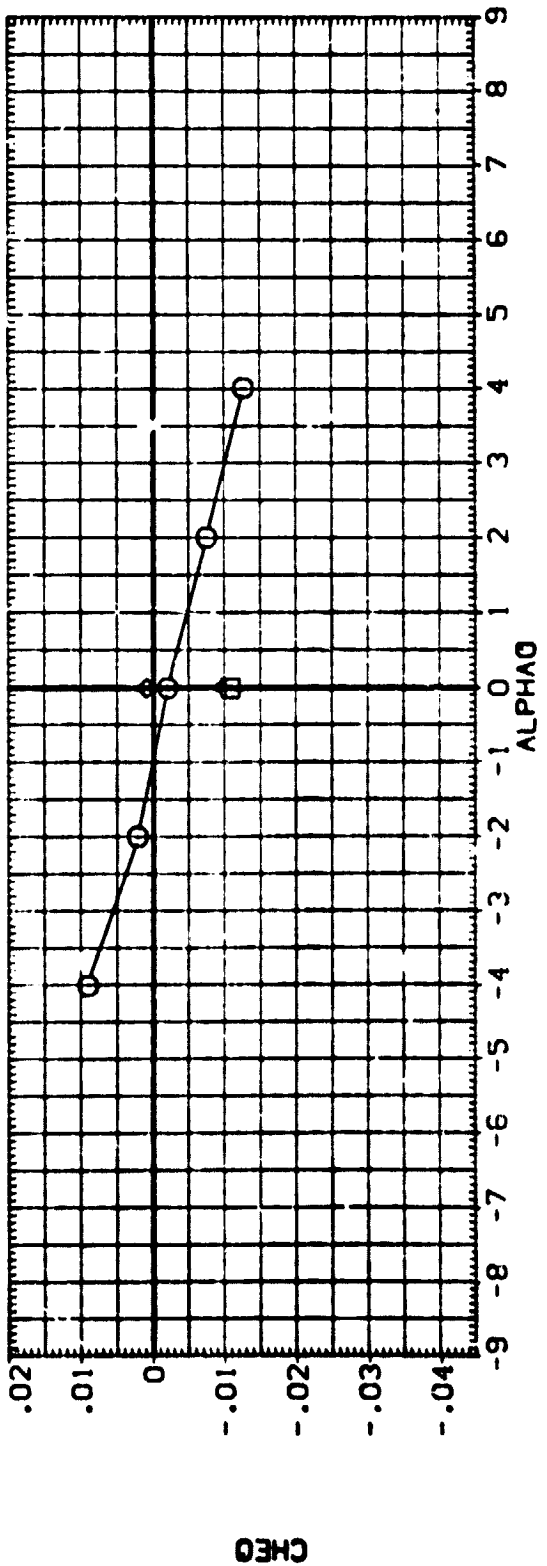
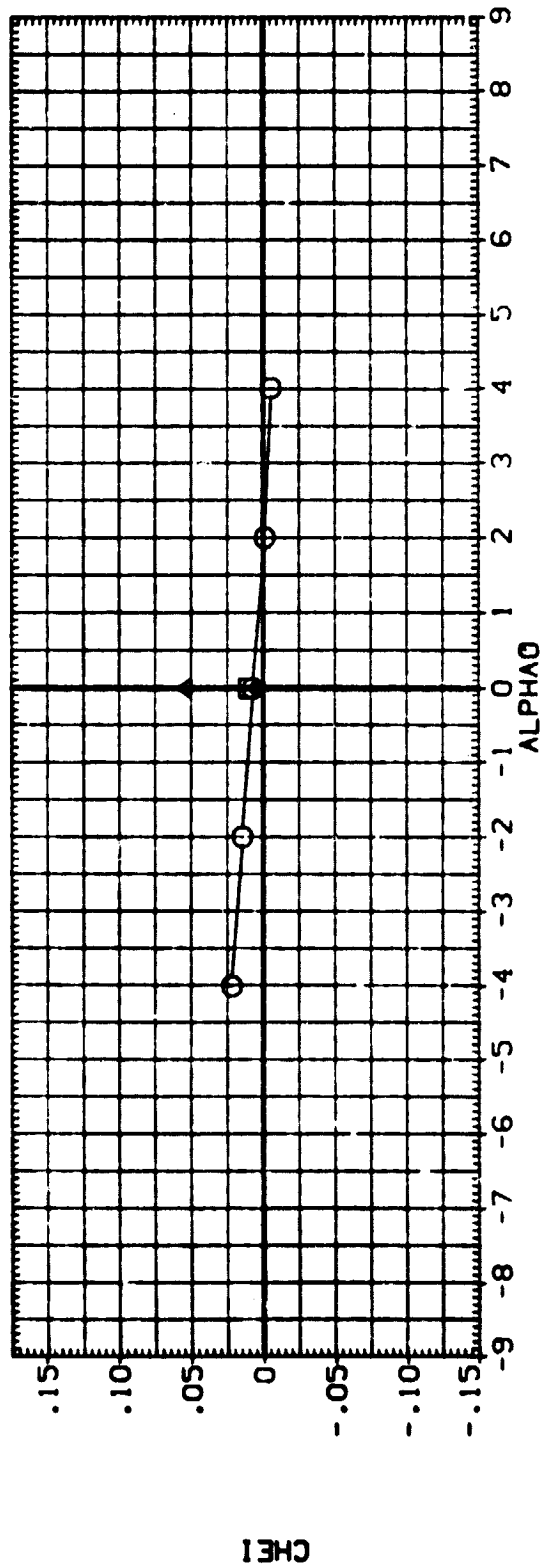


FIG. 31 ELEVON HINGE MOMENT COEFFICIENTS, M=2.0

(A) BETA = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(METH36)	AME597-019(IAB1) LVAP	8.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(METH44)	AME597-019(IAB1) LVAP	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(METH47)	AME597-019(IAB1) LVAP	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(METH40)	AME597-019(IAB1) LVAP	.000	.000	2.000	.000	XHRP 976.0000 IN.
						YHRP 400.0000 IN.
						ZHRP 400.0000 IN.
						SCALE .0300

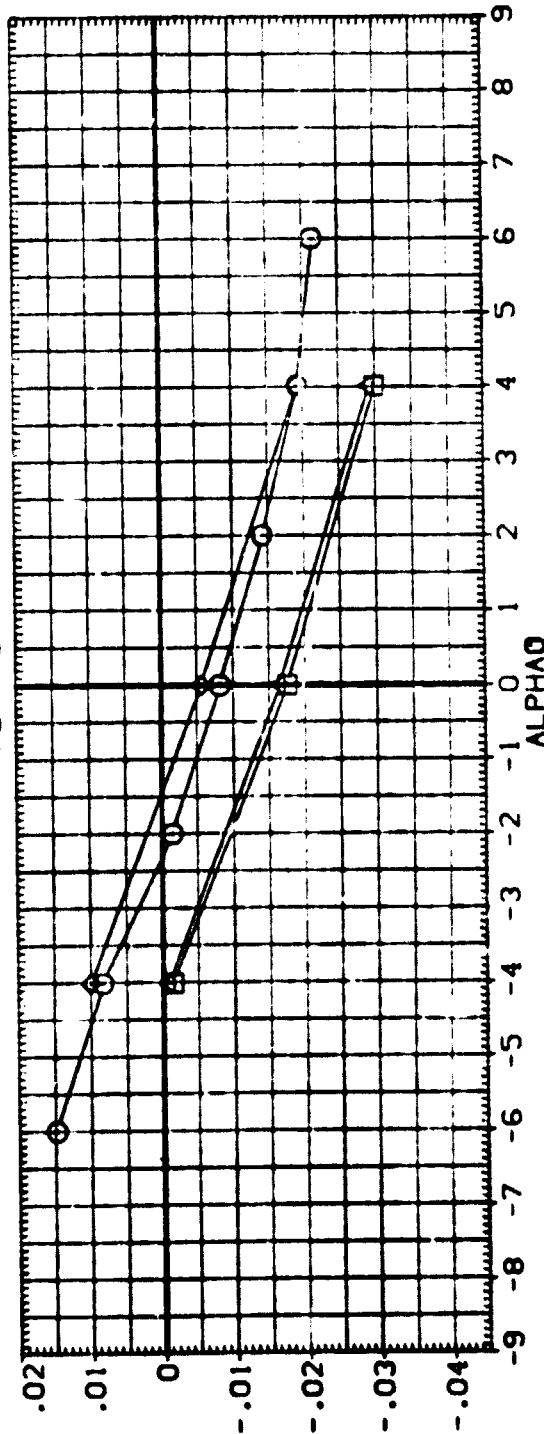
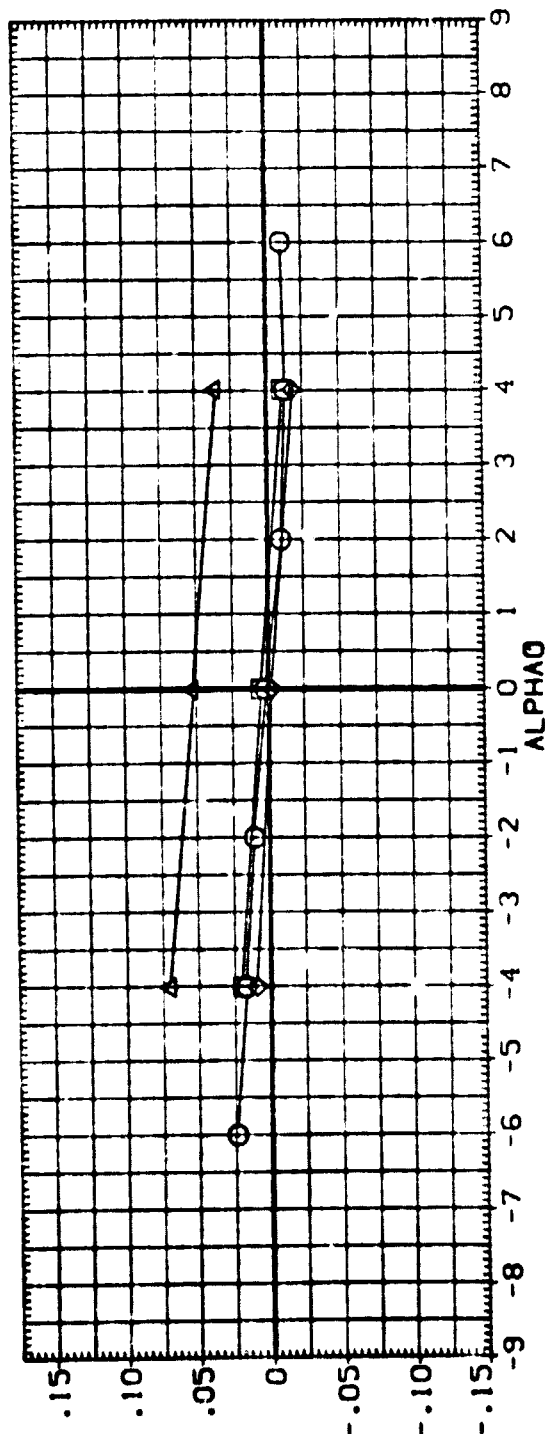


FIG. 31 ELÉVON HINGE MOMENT COEFFICIENTS, M=2.0

(B)BET.0 = -4.00

REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDRK	REFERENCE INFORMATION
(NETM08)	ORBITTER-ALL HL SEALED	8.000	-4.000	2.000	.000	SREF 2690.0000 SO.FT.
(NETM44)	ORBITTER-ALL HL SEALED	8.000	-4.000	2.000	.000	LREF 1297.0000 IN.
(NETM47)	ORBITTER-ALL HL SEALED	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(NETM40)	DATA NOT AVAILABLE					XMRP 976.0000 IN. XT
						ZMRP .0000 IN. YT
						SCALE 400.0000 IN. ZT

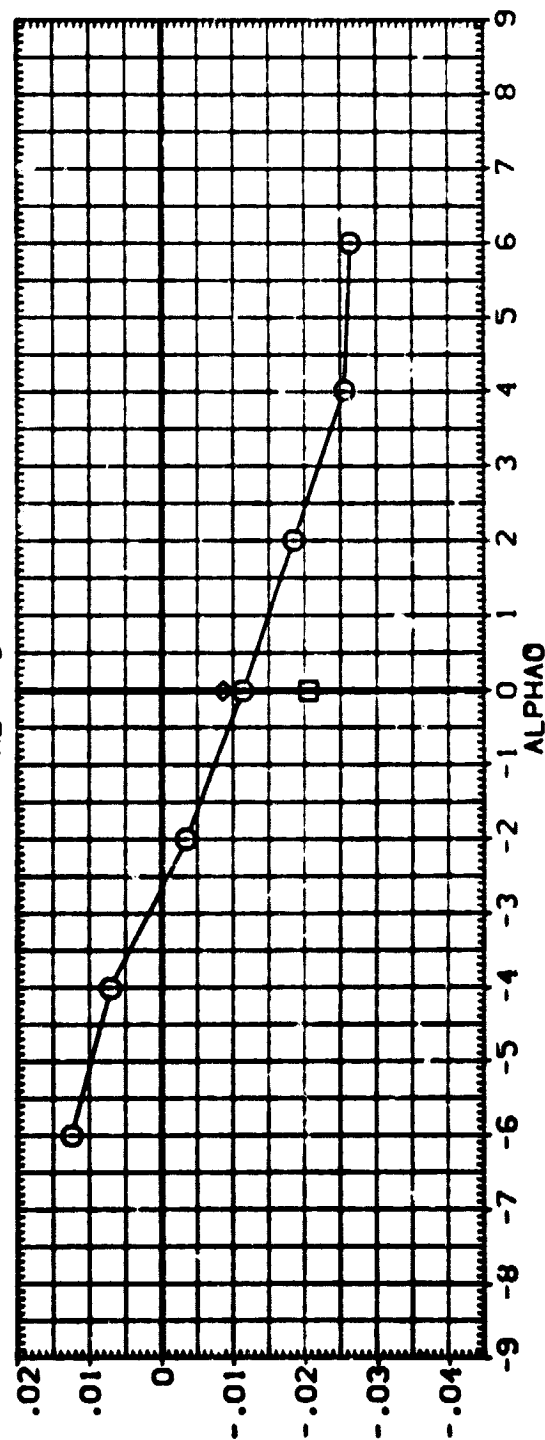
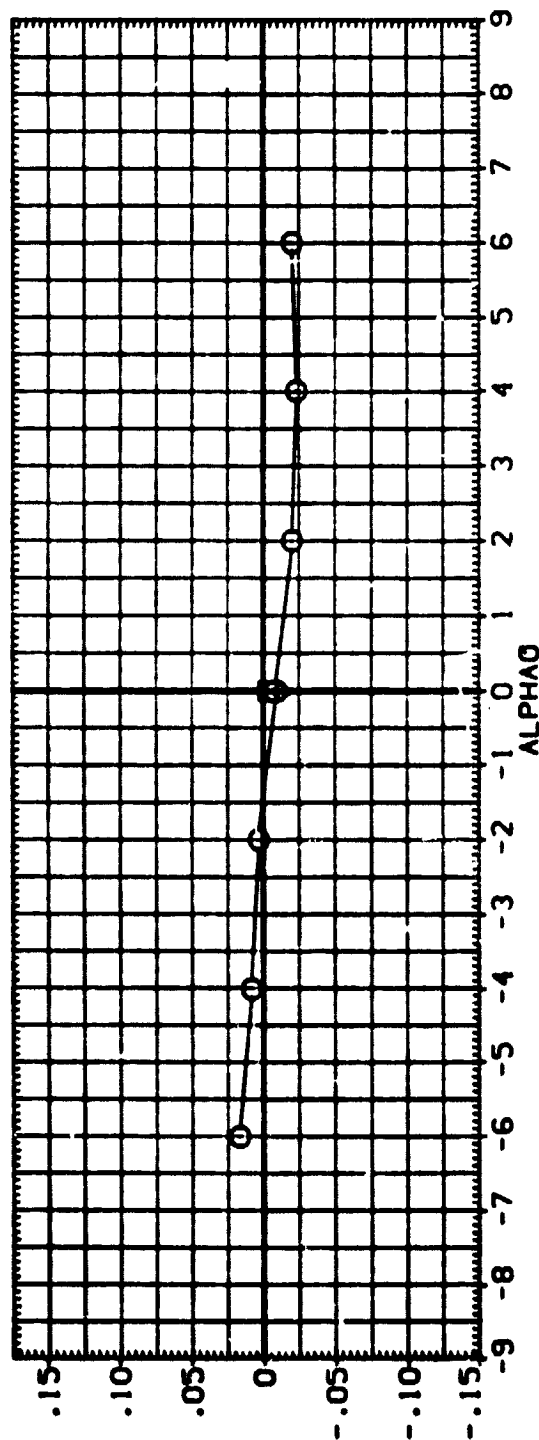


FIG. 31 ELEVON HINGE MOMENT COEFFICIENTS, $M=2.0$

(C)BET.0 = -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-OB	MACH	SPDRK	REFERENCE INFORMATION
(METN36)	OB1:TER-ALL M2 SEALED	3.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(METN44)	OB1:TER-ALL M2 SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(METN47)	OB1:TER-ALL M2 SEALED	10.000	-4.000	2.000	.000	BREF 1237.0000 IN.
(METN40)	OB1:TER-ALL M2 SEALED	.000	.000	2.000	.000	XMRP 976.0000 IN.
						YMRP .0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

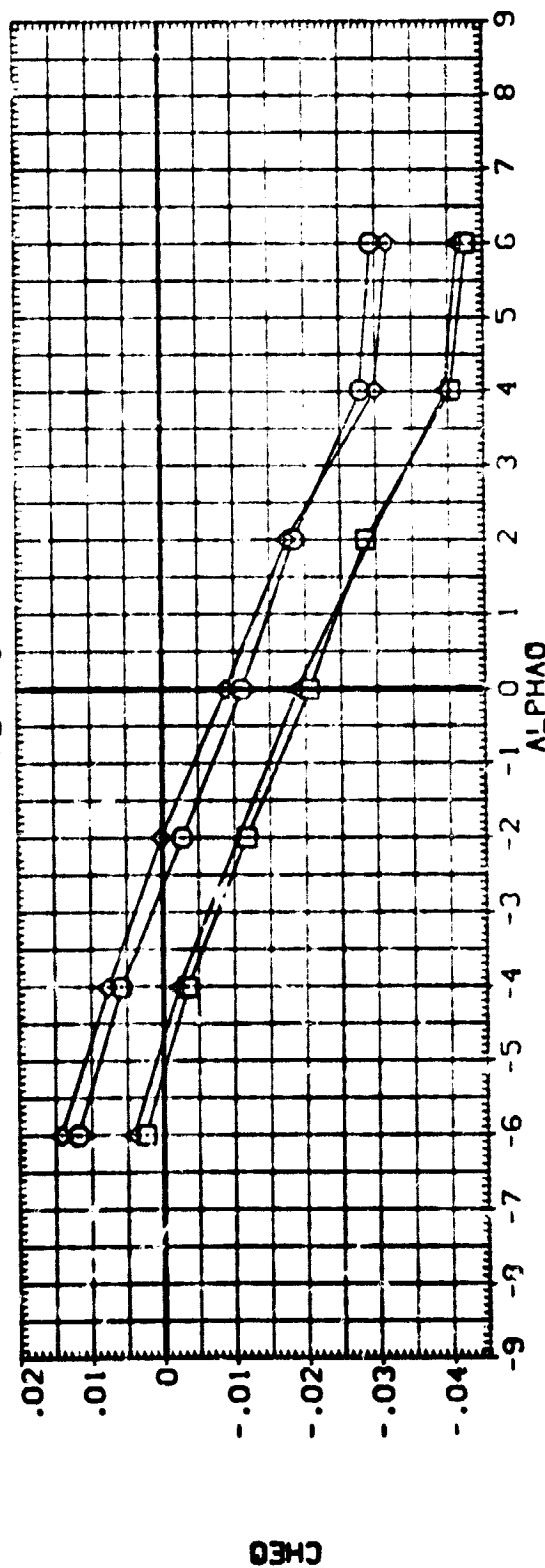
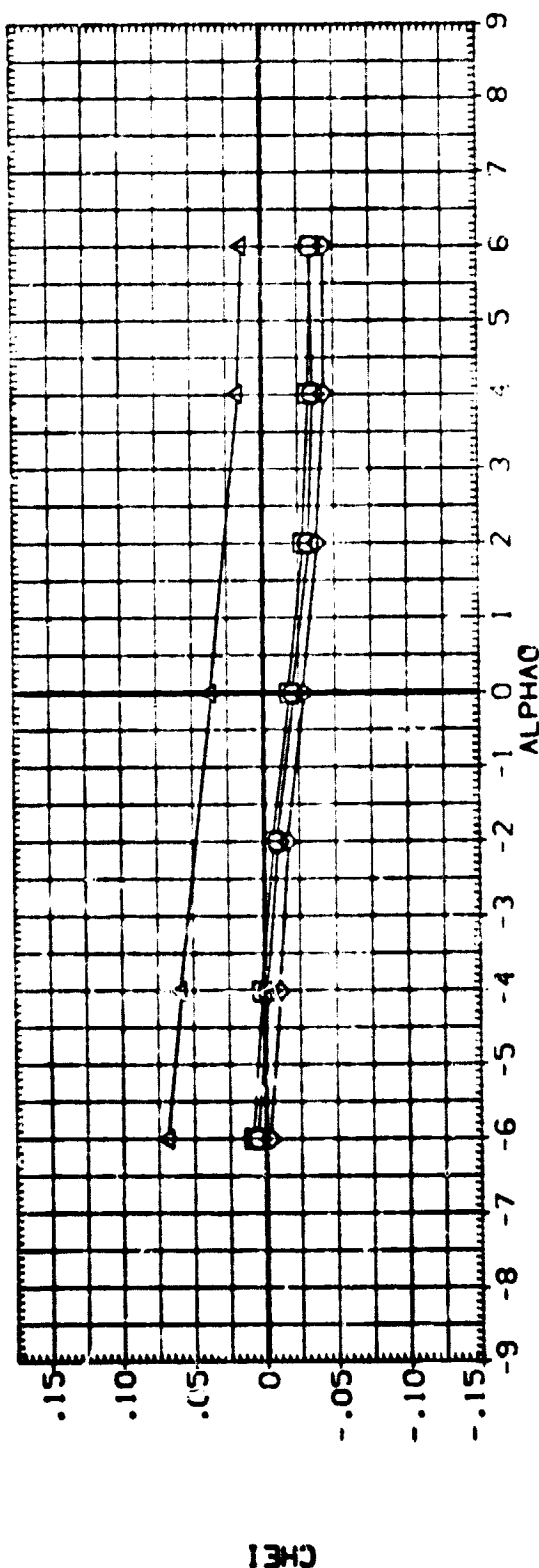


FIG. 31 ELEVON HINGE MOMENT COEFFICIENTS, $M=2.0$

(OBETA) = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-CB	MACH	SPDBRK	REFERENCE INFORMATION
(METH36)	AMES97-019(TA11) LVAP	8.000	-4.000	2.000	.000	SREF 2690.0000 SO.FT.
(METH44)	AMES97-019(TA6) LVAP	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(METH47)	AMES97-019(TA8) LVAP	10.000	-4.000	2.000	.000	SREF 1297.0000 IN.
(METH40)	DATA NOT AVAILABLE					XMRP 976.0000 IN. XT
						ZMRP .0000 IN. YT
						SCALE 400.0000 IN. ZT

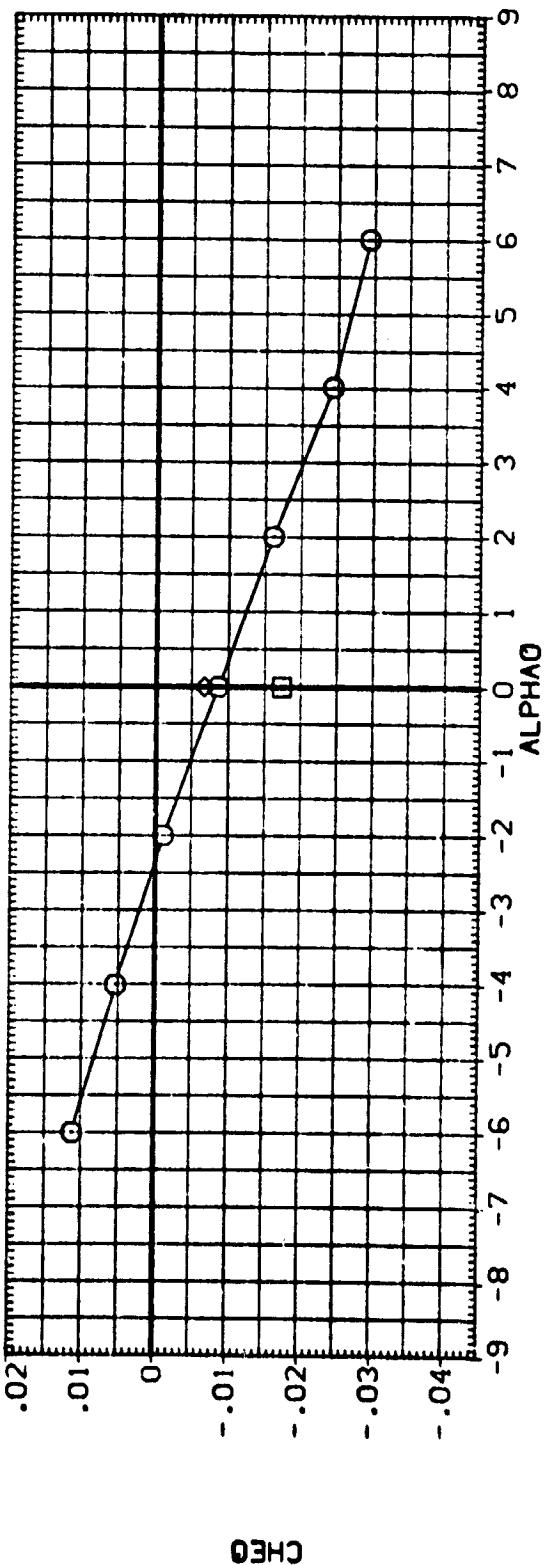
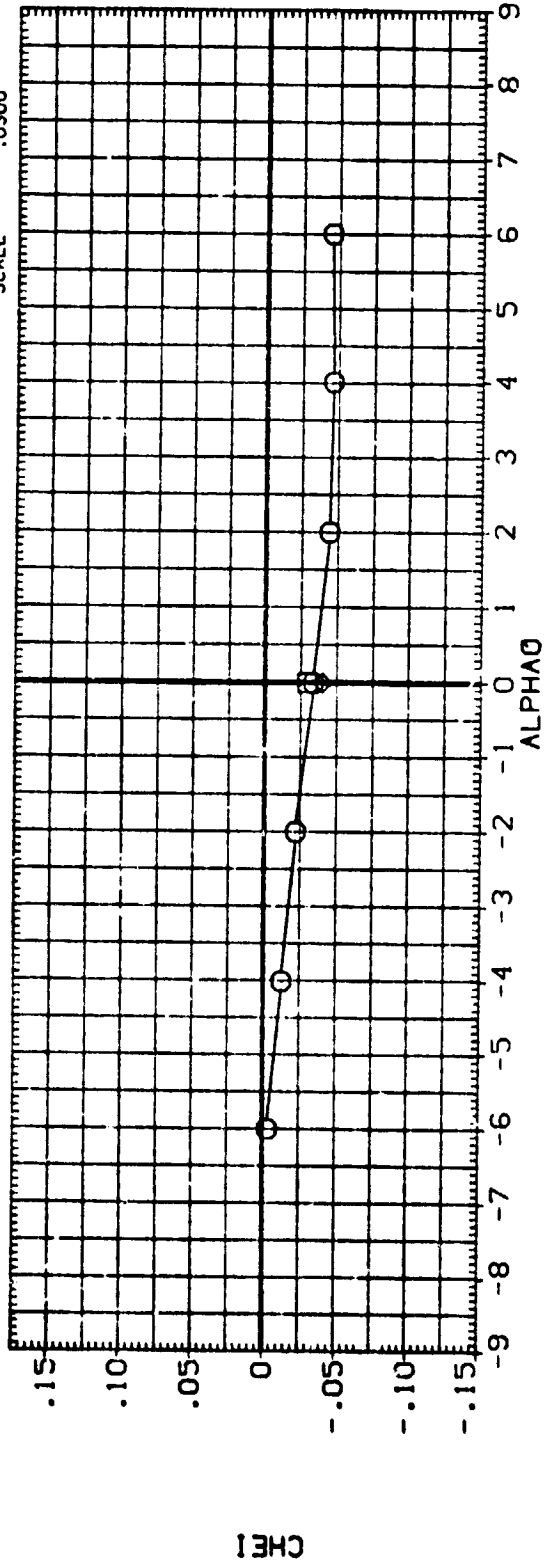


FIG. 31 ELEVON HINGE MOMENT COEFFICIENTS, M=2.0

(E)BET 10 = 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDRK	REFERENCE INFORMATION
(METH36)	AMES97-019(1A81) LVAP	8.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(METH44)	AMES97-019(1A81) LVAP	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(METH47)	AMES97-019(1A81) LVAP	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(METH40)	AMES97-019(1A81) LVAP	.000	.000	2.000	.000	YHPP 976.0000 IN.
						YHPP 400.0000 IN.
						SCALE .0300

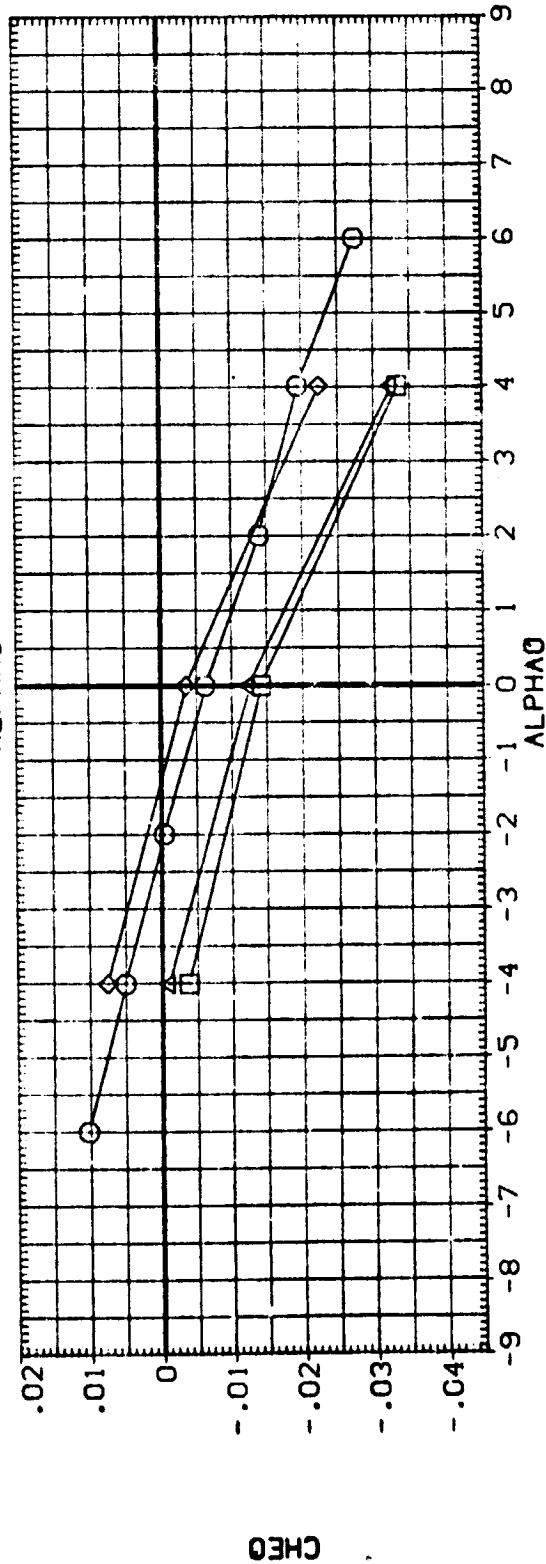
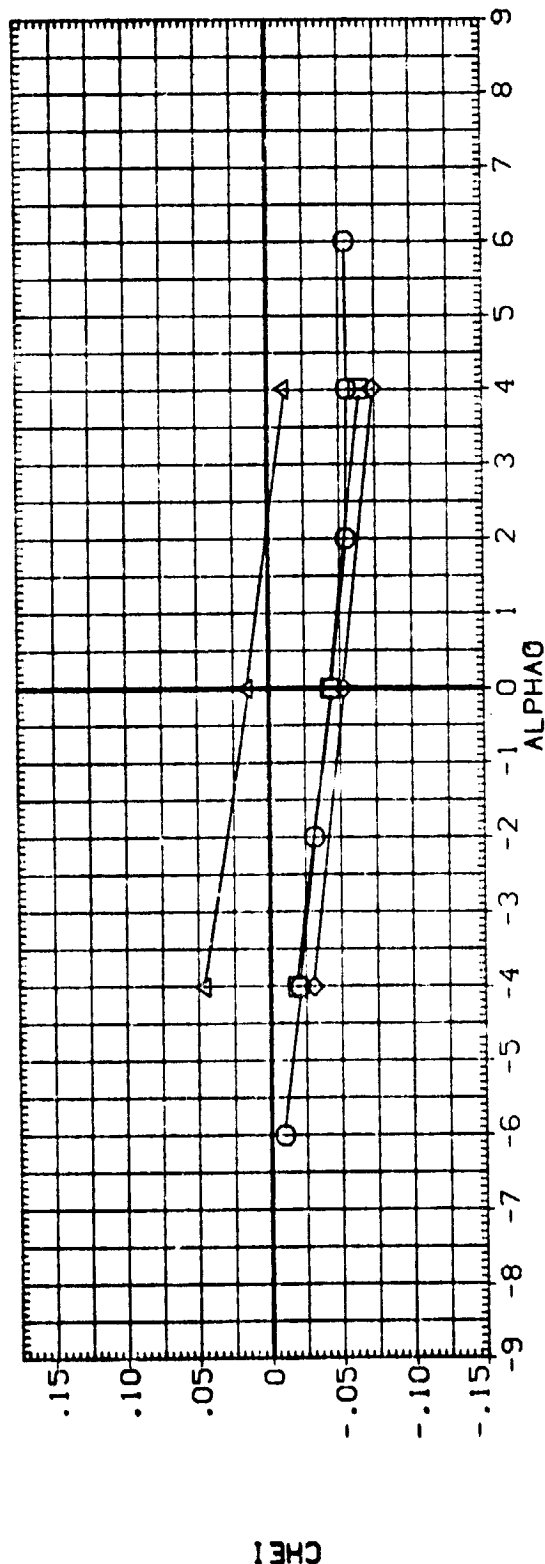


FIG. 31 ELEVON HINGE MOMENT COEFFICIENTS, $M=2.0$

(F)BET.0 = 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPOBRK	REFERENCE INFORMATION
(METN36)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.000	.000	SREF 2690.0000 SQ.FT.
(METN44)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	.000	2.000	.000	LREF 1297.0000 IN.
(METN47)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	10.000	-4.000	2.000	.000	BREF 1297.0000 IN.
(METN40)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	.000	.000	2.000	.000	XMRP 976.0000 IN. XT
						YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

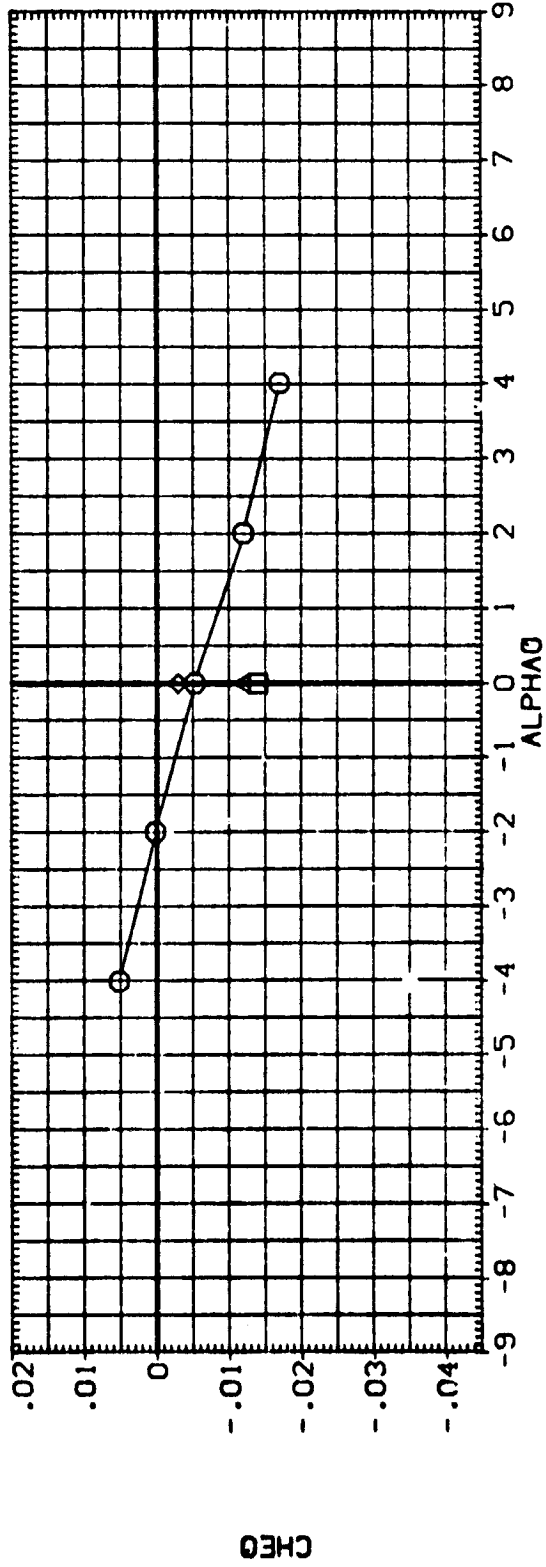
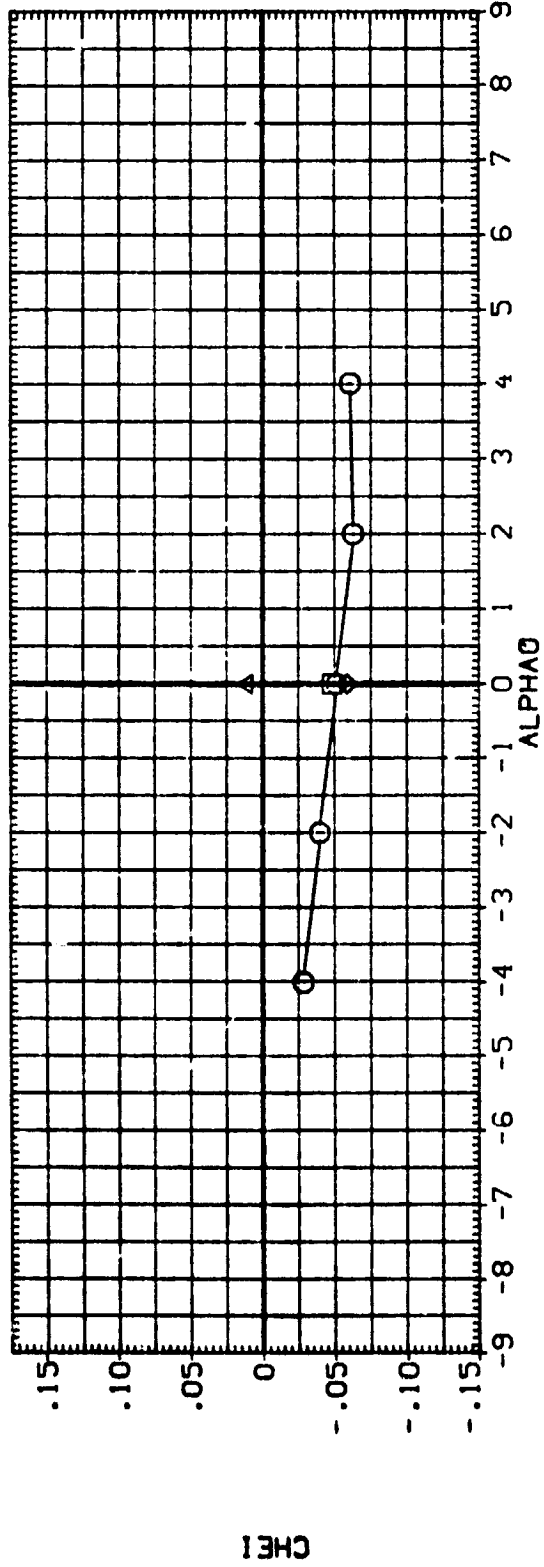


FIG. 31 ELEVON HINGE MOMENT COEFFICIENTS, M=2.0

(G)BET.0 = 6.00

DATA SET SYMBOL: (METH37) (METH45) (METH41)

CONFIGURATION DESCRIPTION: AMES97-019(1A81) LVAP ORBITTER-ALL PL SEALED AMES97-019(1A81) LVAP ORBITTER-ALL PL SEALED AMES97-019(1A81) LVAP ORBITTER-ALL PL SEALED

ELV-18: 8.000 8.000 .000

ELV-CB: -4.000 .000 .000

MACH: 2.200 2.200 2.200

SPOBRK: .000 .000 .000

REFERENCE INFORMATION: SREF 2690.0000 SO.FT. IN. LREF 1297.0000 IN. BREF 1297.0000 IN. XT XMRP 976.0000 IN. YT YMRP .0000 IN. ZT ZMRP 400.0000 IN. ZT SCALE .0300

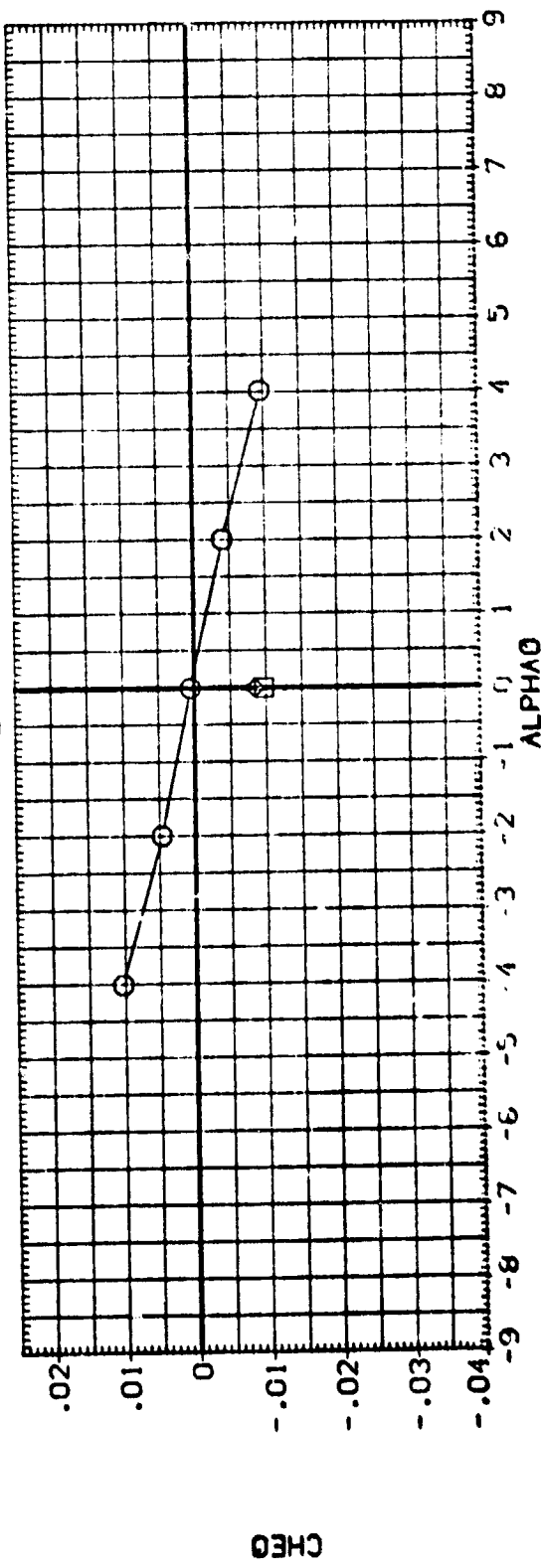
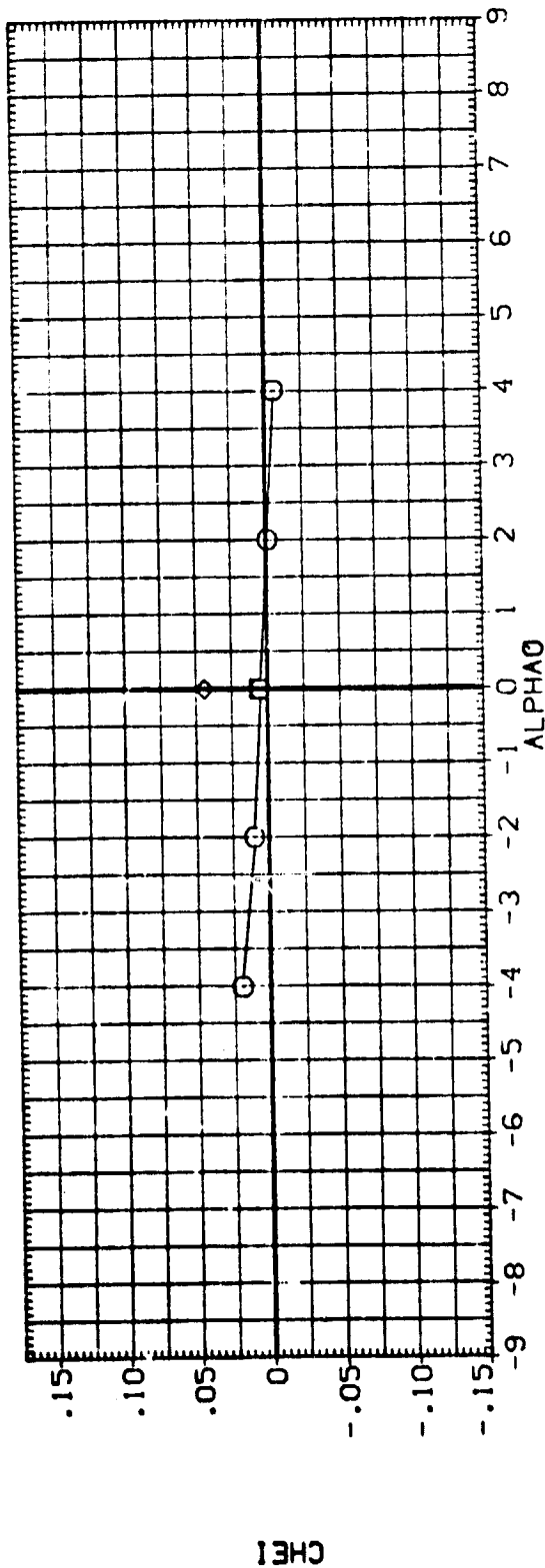


FIG. 32 ELEVON HINGE MOMENT COEFFICIENTS, M=2.2

(A) BETA = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION			
(METH37)	AMES97-019(1A81) LVAP	8.000	-4.000	2.200	.000	SREF	2590.0000	50. FT.	
(METH45)	AMES97-019(1A81) LVAP	8.000	.000	2.200	.000	LREF	1297.0000	IN.	
(METH41)	AMES97-019(1A81) LVAP	.000	.000	2.200	.000	BREF	1297.0000	IN.	XT
						XMRP	976.0000	IN.	YT
						YMRP	.0000	IN.	ZT
						ZMRP	400.0000	IN.	ZT
						SCALE	.0300		

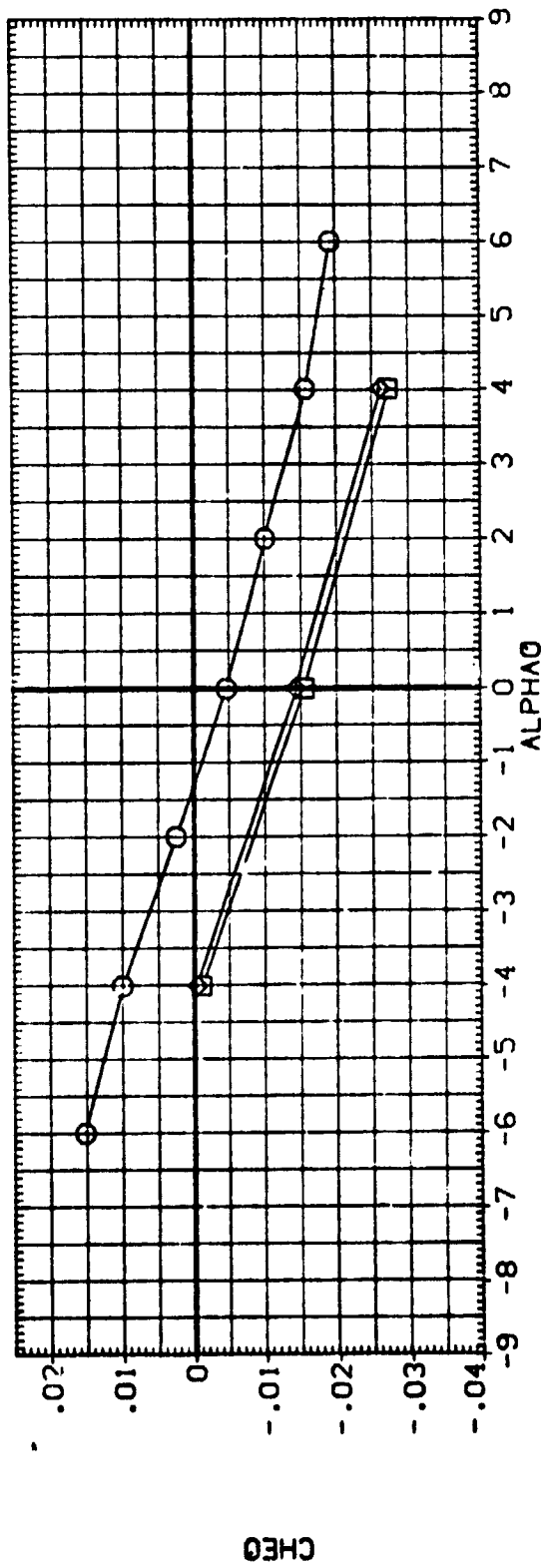
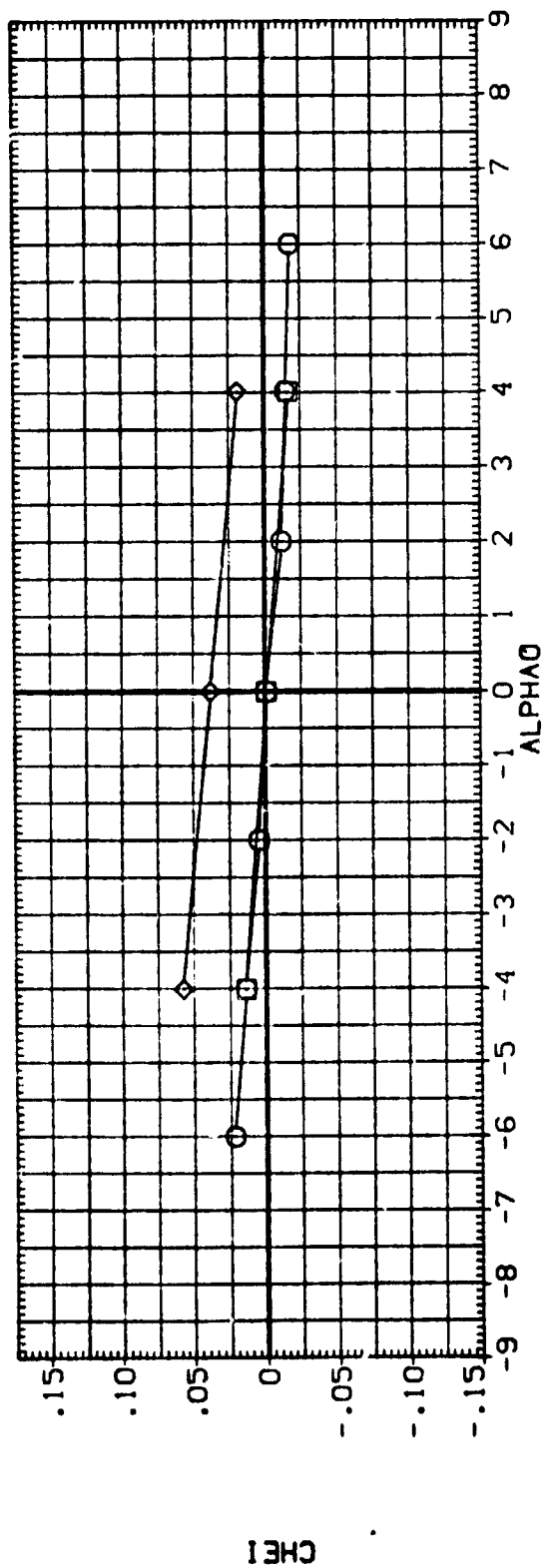


FIG. 32 ELEVON HINGE MOMENT COEFFICIENTS, $M=2.2$

(B)BET.0 = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(METH37)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.200	.000	SREF 2690.0000 50.FT.
(METH45)	AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(METH41)	DATA NOT AVAILABLE	.000	.000	2.200	.000	BREF 1297.0000 IN.
						XMRP 976.0000 IN. XI
						YMRP .0000 IN. YI
						ZMRP 400.0000 IN. ZI
						SCALE .0300

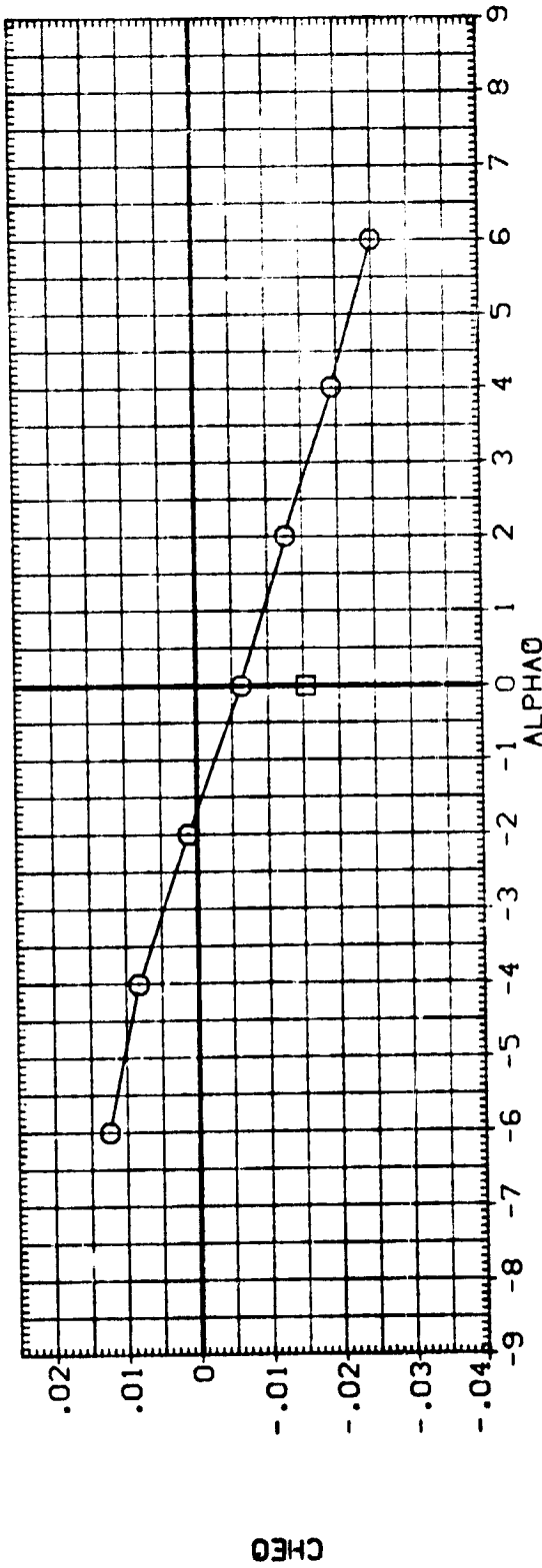
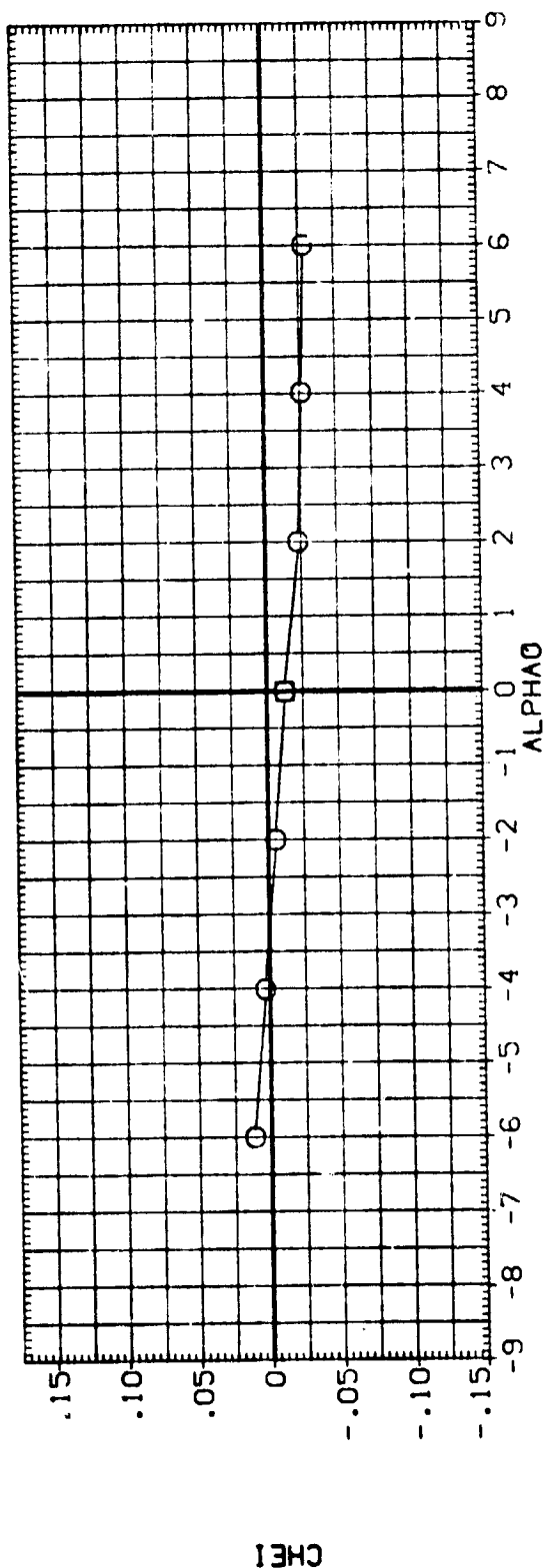


FIG. 32 ELEVON HINGE MOMENT COEFFICIENTS, M=2.2

(C)BETA0 = -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPCGRK	REFERENCE INFORMATION
(MET437)	ANE597-019C(A81) LVAP	8.000	-4.000	2.200	.000	SREF 2690.0000 SQ.FT.
(MET445)	ANE597-019C(A81) LVAP	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(MET441)	ANE597-019C(A81) LVAP	.000	.000	2.200	.000	BREF 1297.0000 IN. XT
						XMRP 976.0000 IN. YT
						ZMRP .0000 IN. ZT
						SCALE 400.0000
						.0300

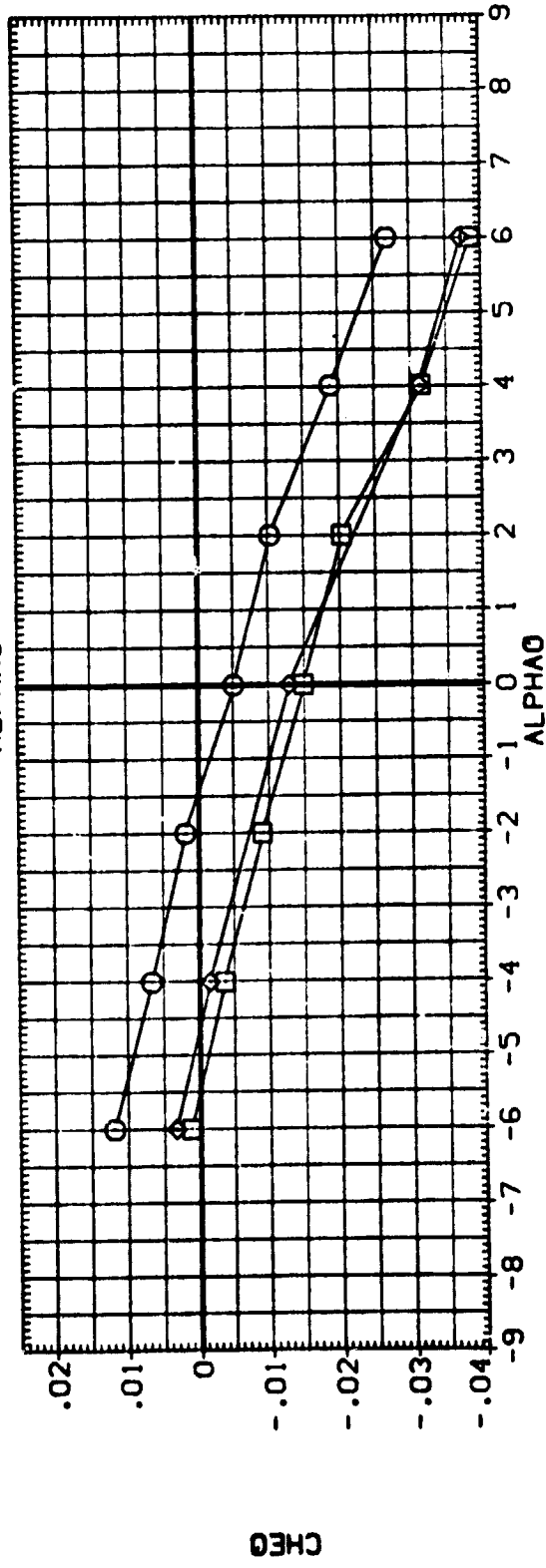
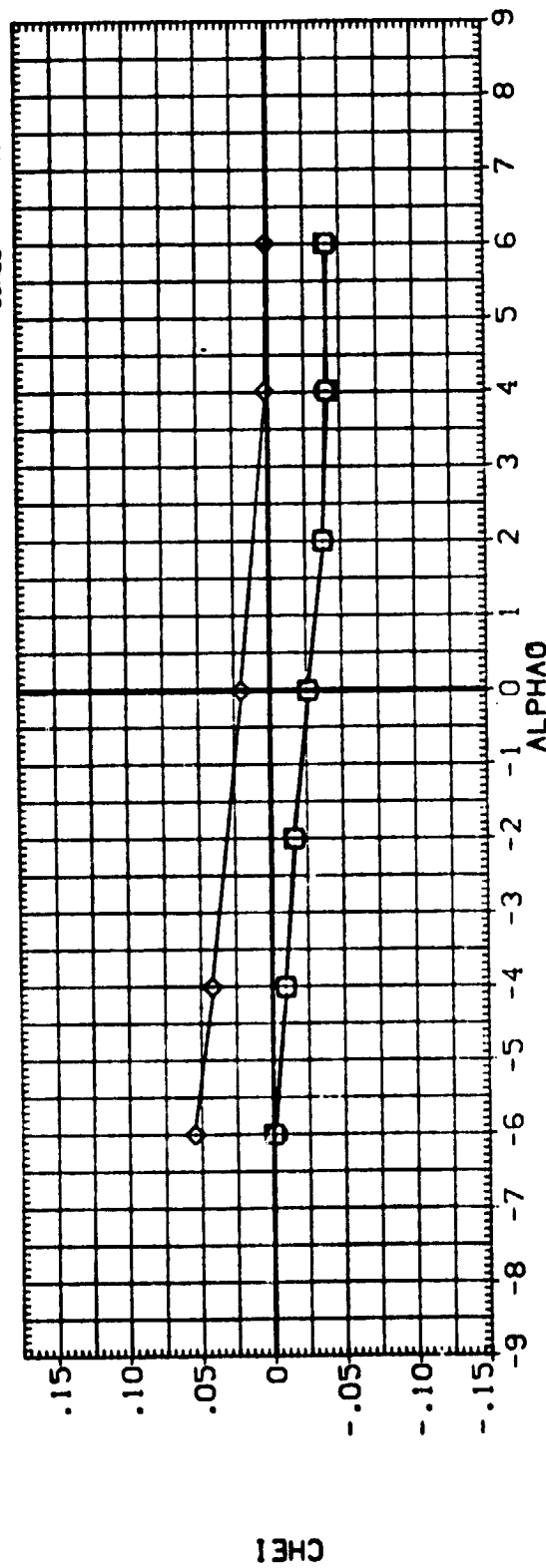


FIG. 32 ELEVON HINGE MOMENT COEFFICIENTS, M=2.2

(O)BETA0 = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(METHJ7)	AMES97-019C(1A81) LVAP	8.000	-4.000	2.200	.000	SREF 2690.0000 SO.FT.
(METH45)	AMES97-019C(1A81) LVAP	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(METH41)	DATA NOT AVAILABLE	.000	.000	2.200	.000	BREF 1297.0000 IN.
						XMRP 976.0000 IN.
						YMRP .0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

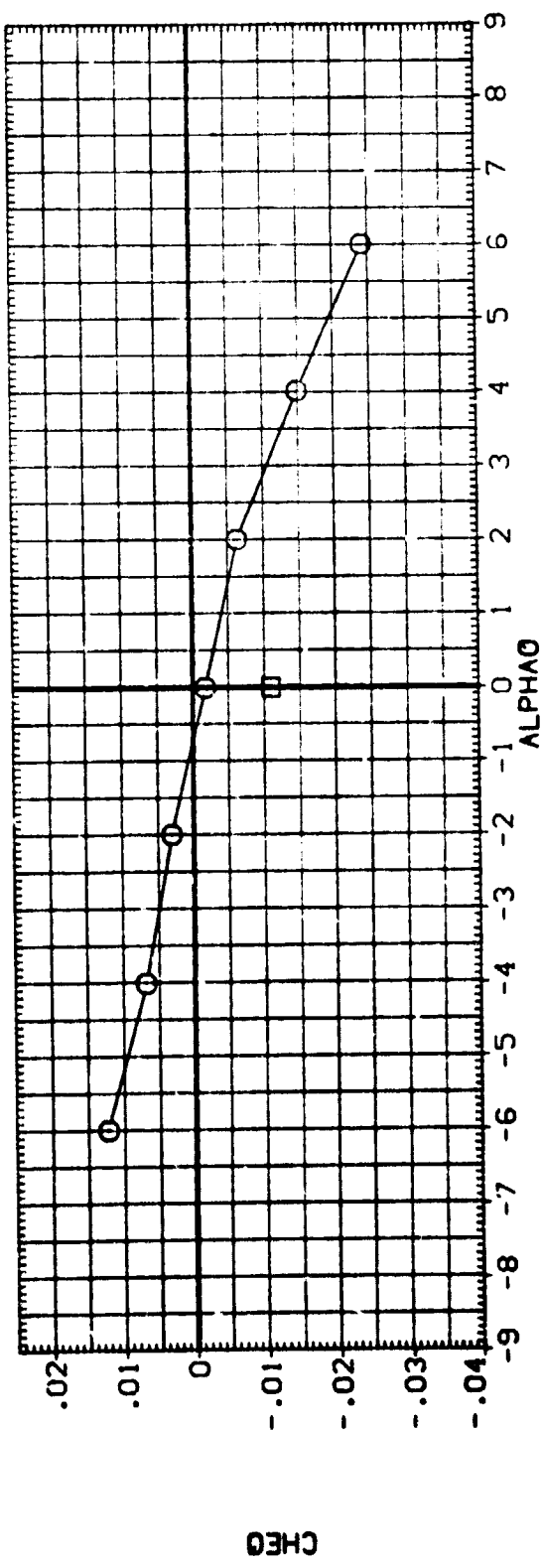
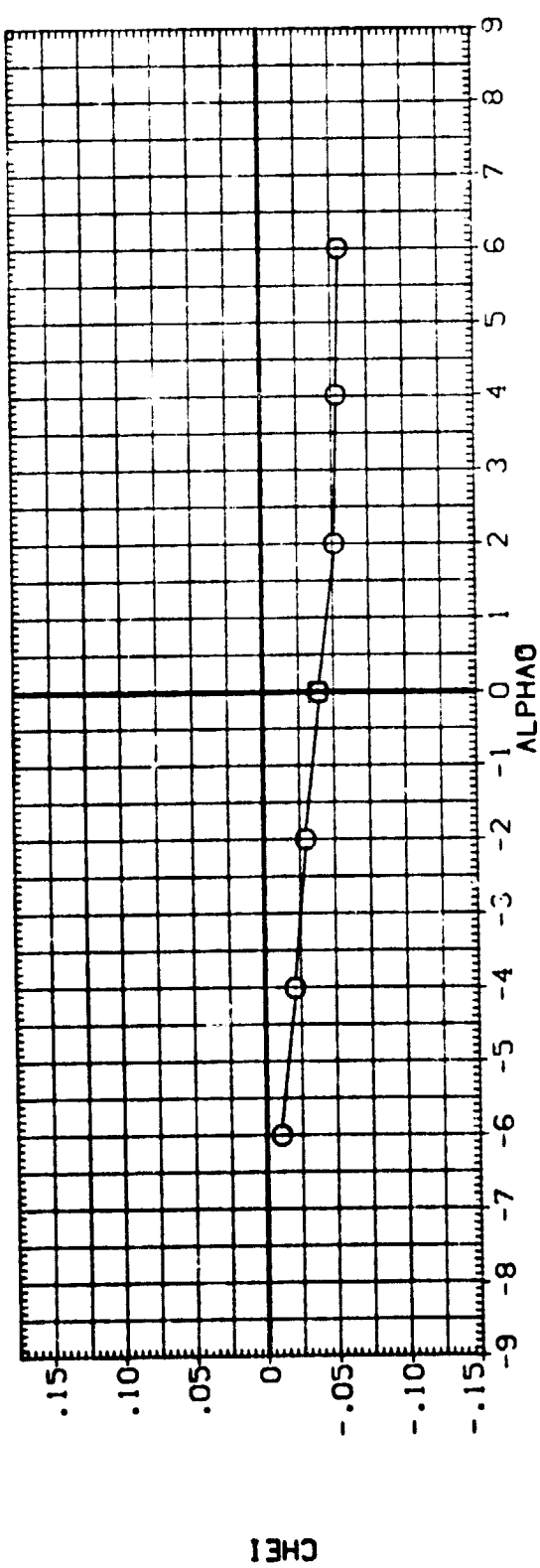


FIG. 32 ELEVON HINGE MOMENT COEFFICIENTS, M=2.2

(E)BET.0 = 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDBRK	REFERENCE INFORMATION
(METM07)	AMES97-019(A81) LVAP ORBITER-ALL HL SEALED	8.000	-4.000	2.200	.000	SREF 2690.0000 SQ.FT.
(METM03)	AMES97-019(A81) LVAP ORBITER-ALL HL SEALED	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(METM11)	AMES97-019(A81) LVAP ORBITER-ALL HL SEALED	.000	.000	2.200	.000	BREF 1297.0000 IN.
						XMRP 976.0000 IN.
						YMRP .0000 IN.
						ZMRP .0000 IN.
						SCALE 400.0000 IN.
						.0300

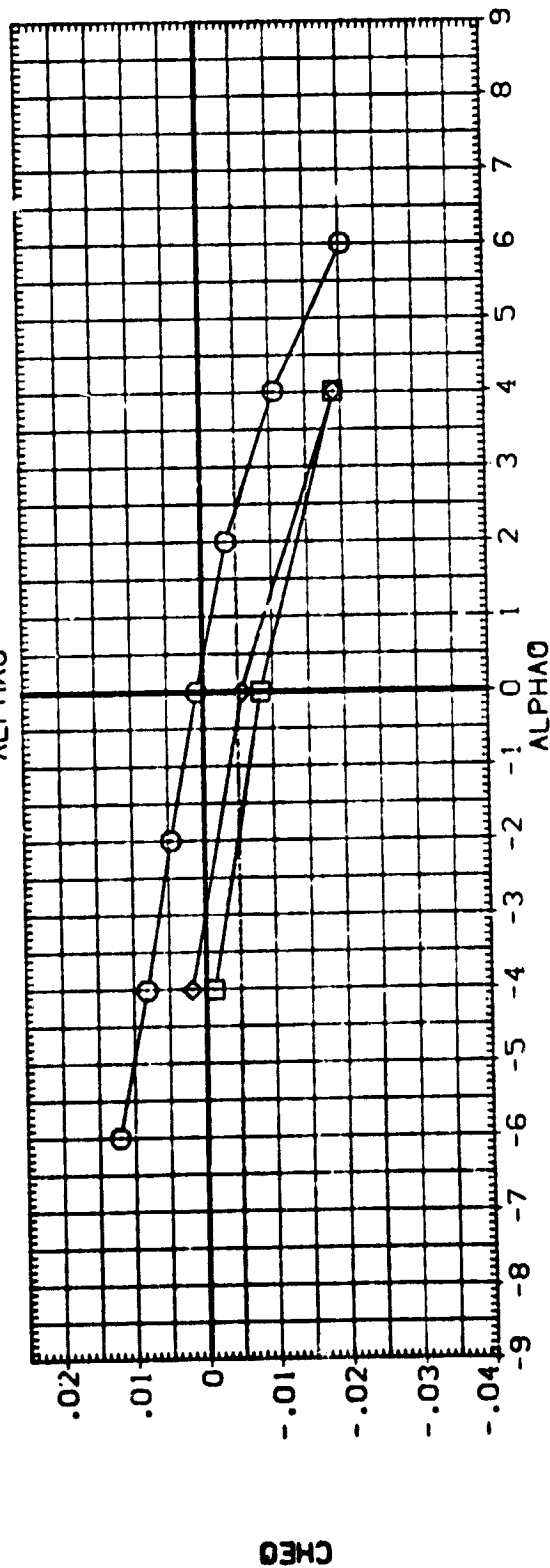
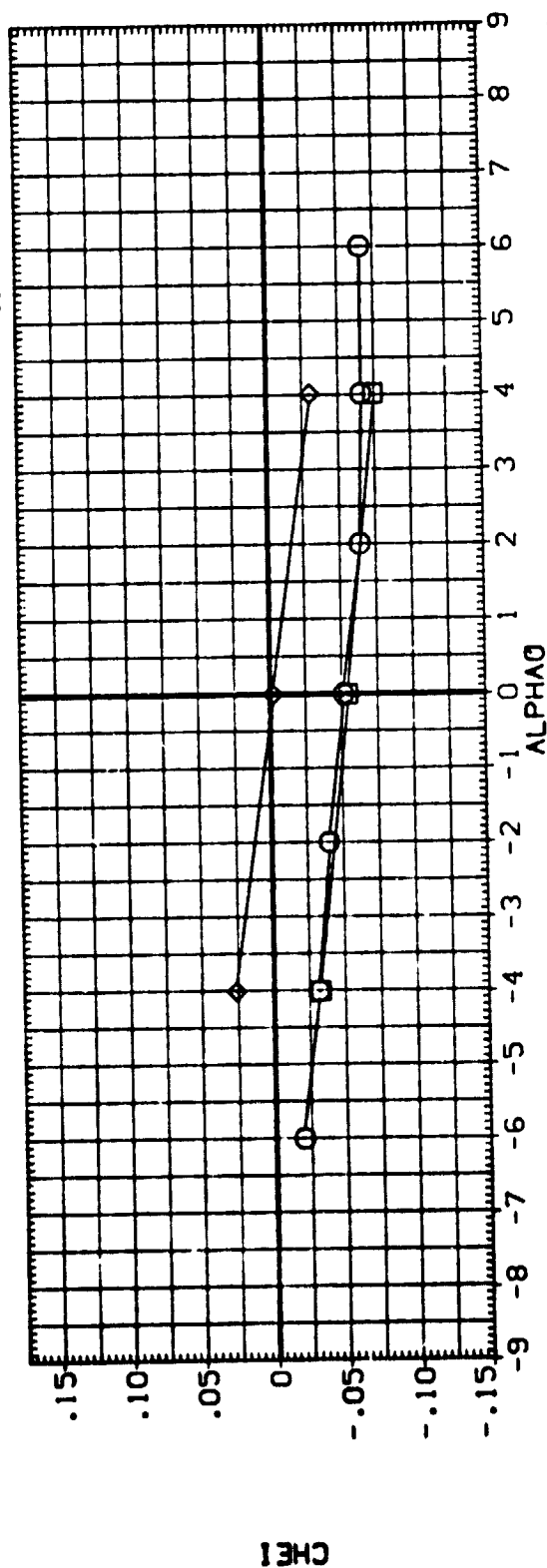


FIG. 32 ELEVON HINGE MOMENT COEFFICIENTS, $M=2.2$

(F)BETA0 = 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPDBRK	REFERENCE INFORMATION
(METH37)	AMES97-019(1A81) LVAP	8.000	-4.000	2.200	.000	SREF 2690.0000 SQ.FT.
(METH45)	AMES97-019(1A81) LVAP	8.000	.000	2.200	.000	LREF 1297.0000 IN.
(METH41)	AMES97-019(1A81) LVAP	.000	.000	2.200	.000	BREF 1297.0000 IN.
						YMRP .0000 IN. XT
						ZMRP .0000 IN. YT
						SCALE 400.0000 IN. ZT

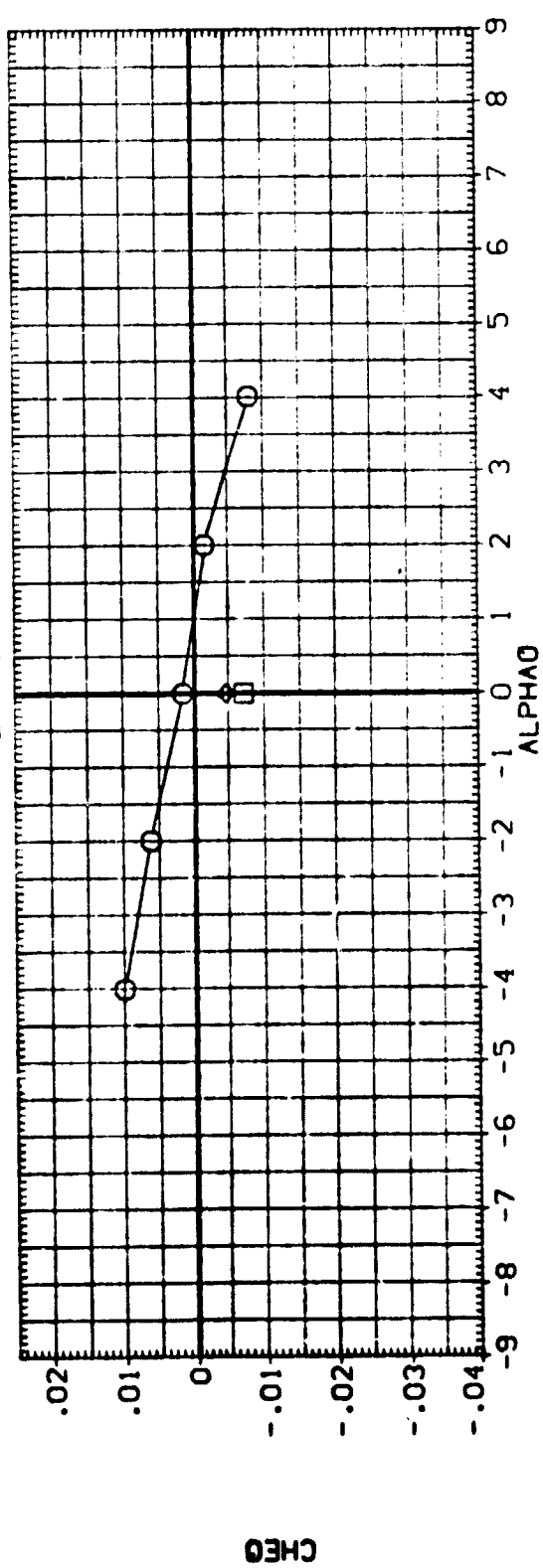
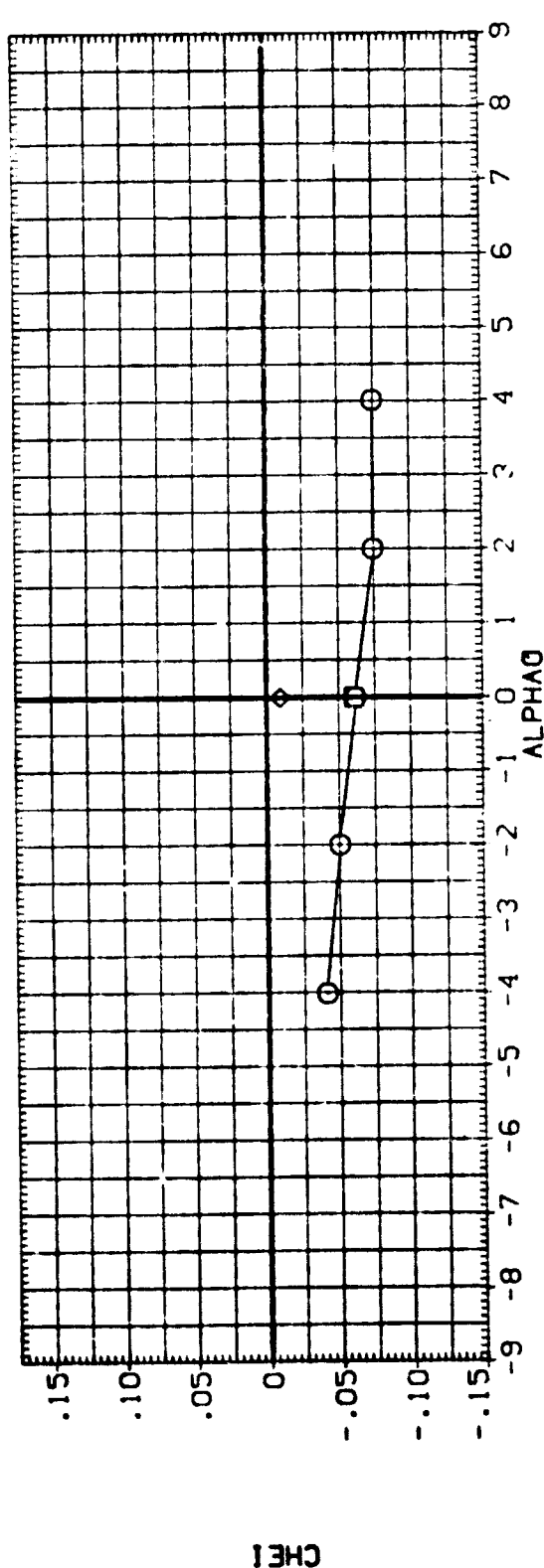


FIG. 32 ELEVON HINGE MOMENT COEFFICIENTS, M=2.2
(G)BET 13 = 6.00

DATA SET SYMBOL: **B** CONFIGURATION DESCRIPTION: **ORBITER-ALL M SEALED** REFERENCE INFORMATION: **SREF 2690.0000 SO.FT.**
 (METHOD) **ANES97-019(1A1)** LVAP ORBITER-ALL M SEALED **LREF 1297.0000 IN.**
 (METHOD) **ANES97-019(1A1)** LVAP ORBITER-ALL M SEALED **BREF 1297.0000 IN. XT**
YMRP 976.0000 IN. YI
ZMRP 400.0000 IN. ZI
SCALE .0300

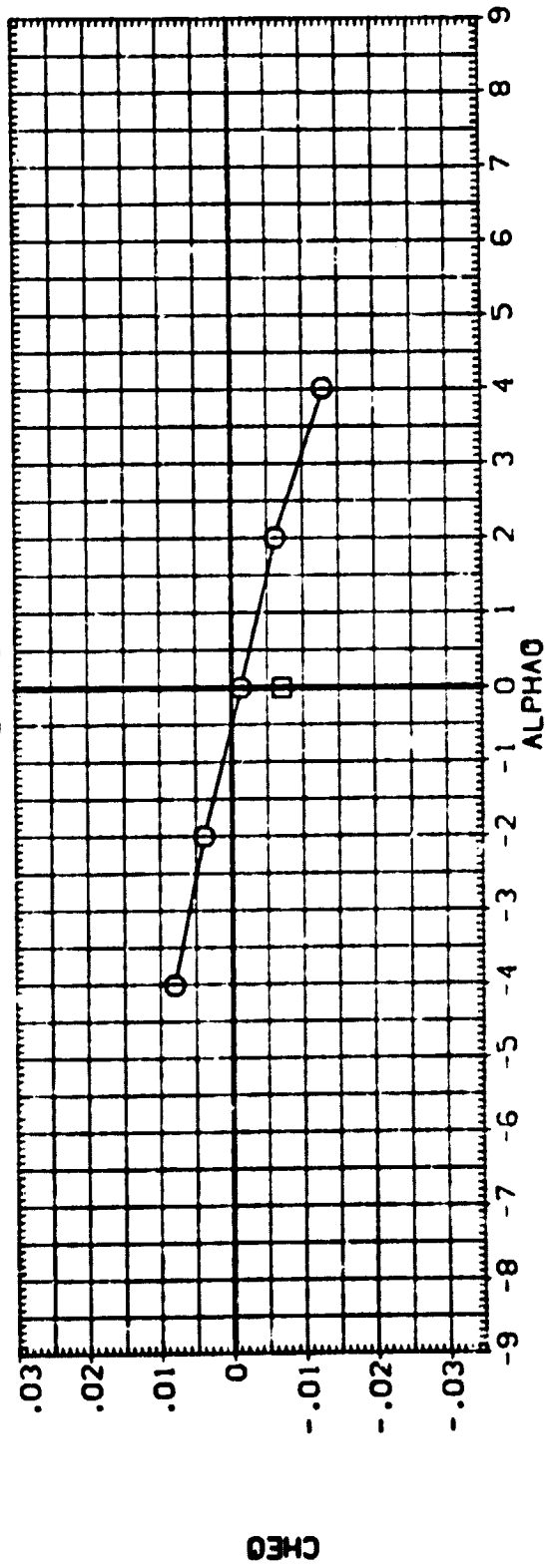
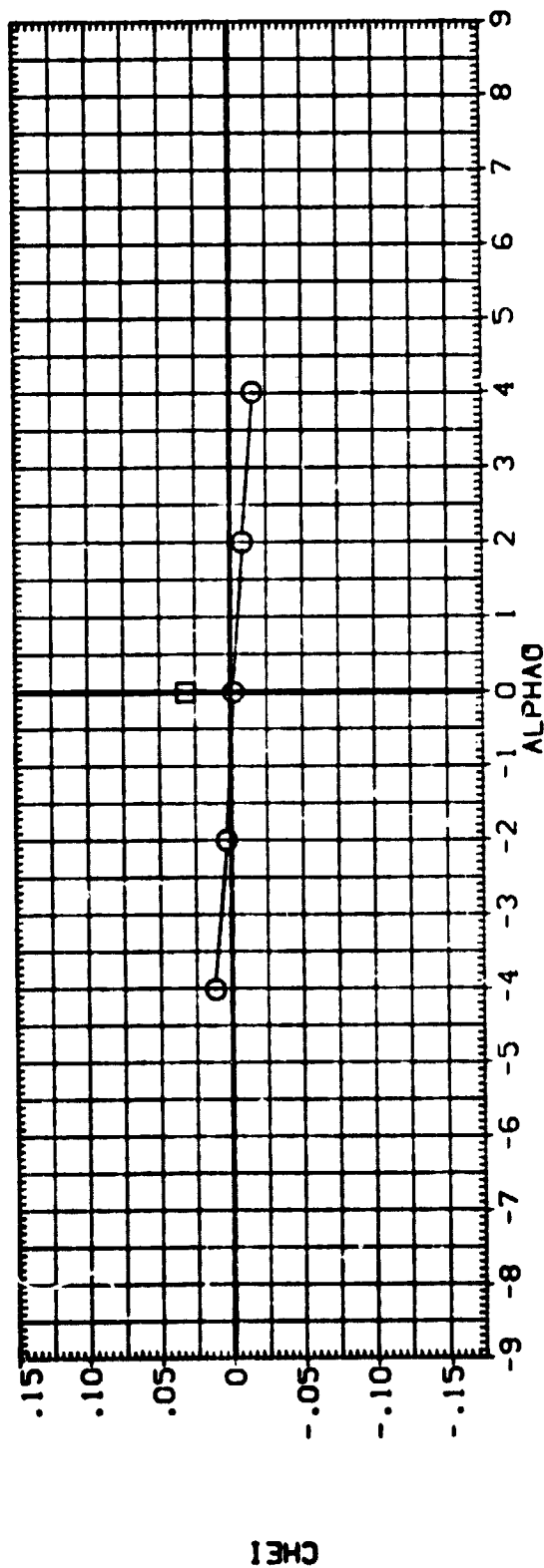


FIG. 33 ELEVON HINGE MOMENT COEFFICIENTS, M=2.5

(A)BET.0 = -6.00

DATA SET SYMBOL (METH38) (METH42) 8

CONFIGURATION DESCRIPTION
 APES97-019(1A81) LVAP CRBITER-ALL ML SEALED
 APES97-019(1A81) LVAP CRBITER-ALL ML SEALED

REFERENCE INFORMATION
 SREF 2690.0000 SQ.FT.
 LREF 1297.0000 IN.
 BREF 1297.0000 IN.
 XHRP 976.0000 IN. XT
 YHRP .0000 IN. YT
 ZHRP 400.0000 IN. ZT
 SCALE .0300

ELV-1B 8.000 ELV-0B -4.000 MACH 2.500 SPOBRK .000
 .000 .000 2.500

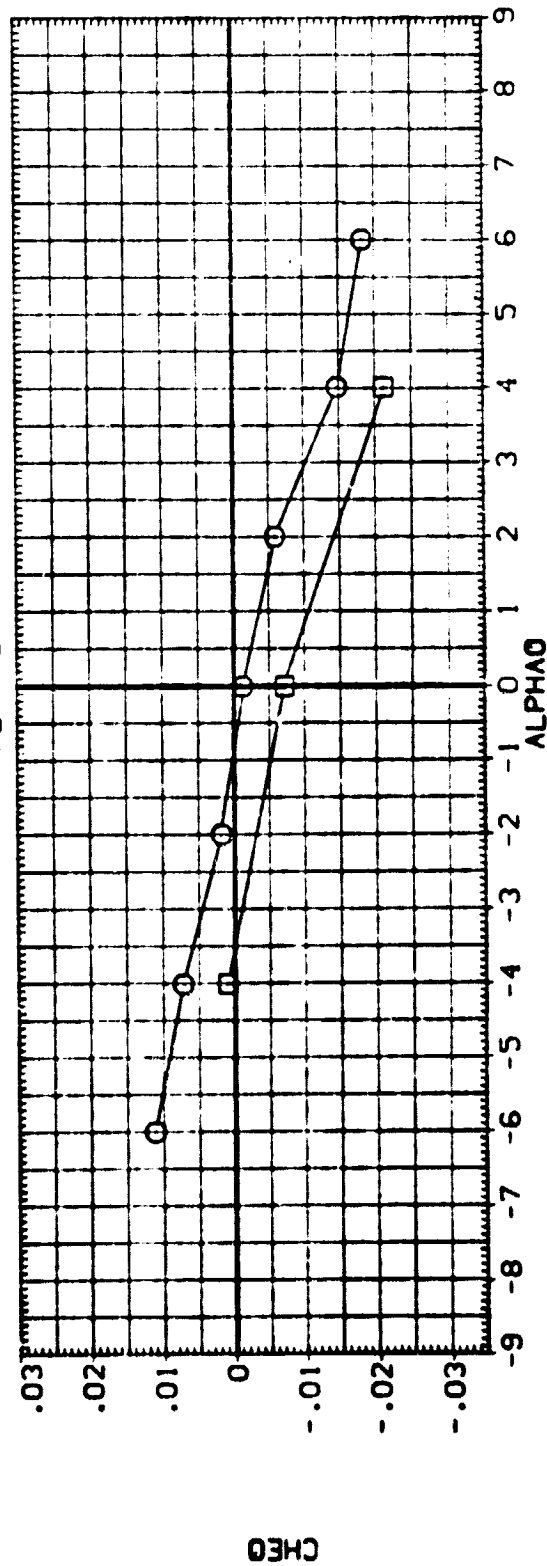
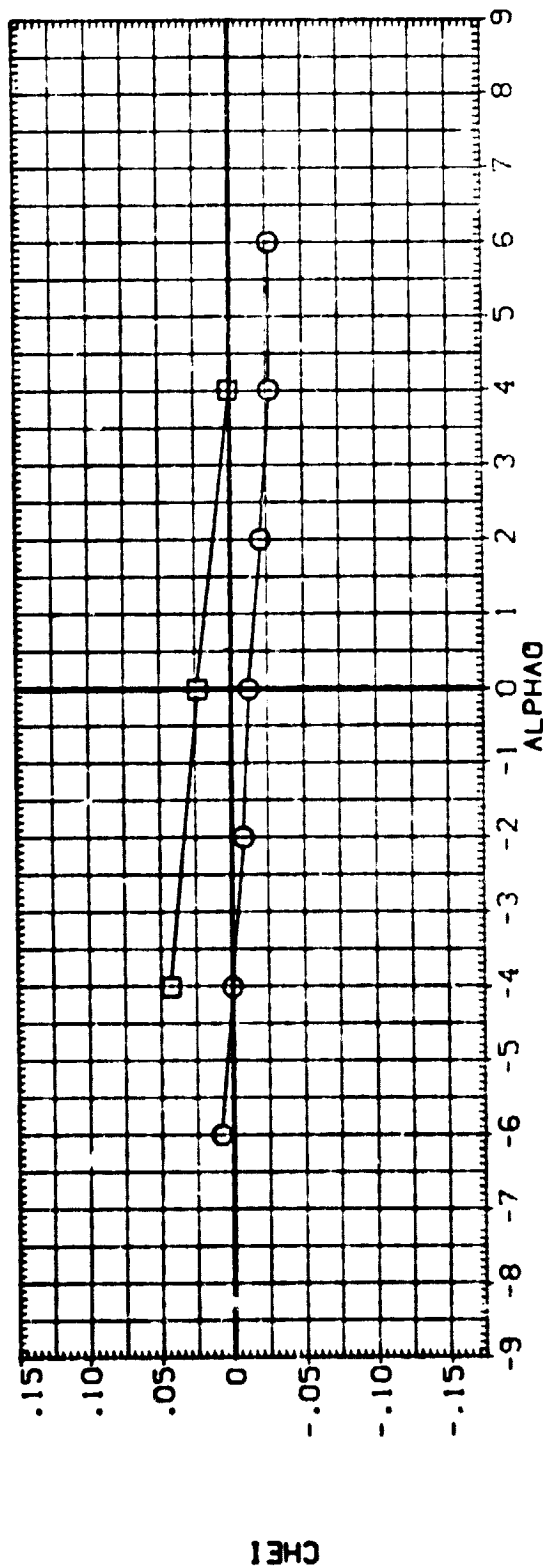


FIG. 33 ELEVON HINGE MOMENT COEFFICIENTS, M=2.5

(B)8ET.0 = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDBRK	REFERENCE INFORMATION
(METHOD)	ANE597-019(JAG1) LVAP	8.000	-4.000	2.500	.000	SREF 2000.0000
(METHOD)	ANE597-019(JAG1) LVAP	.000	.000	2.500	.000	LREF 1.97.0000
						BREF 1.97.0000
						YMRP 976.0000
						ZMRP 0.0000
						SCALE 400.0000
						IN. XT
						IN. ZT

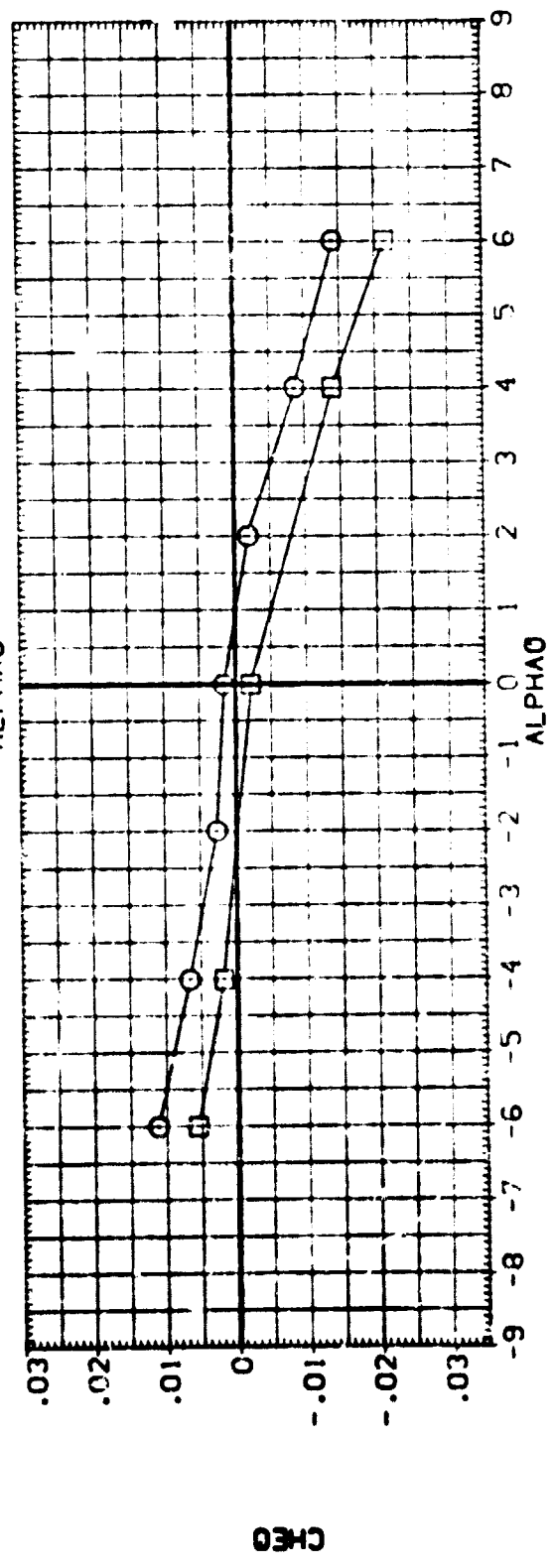
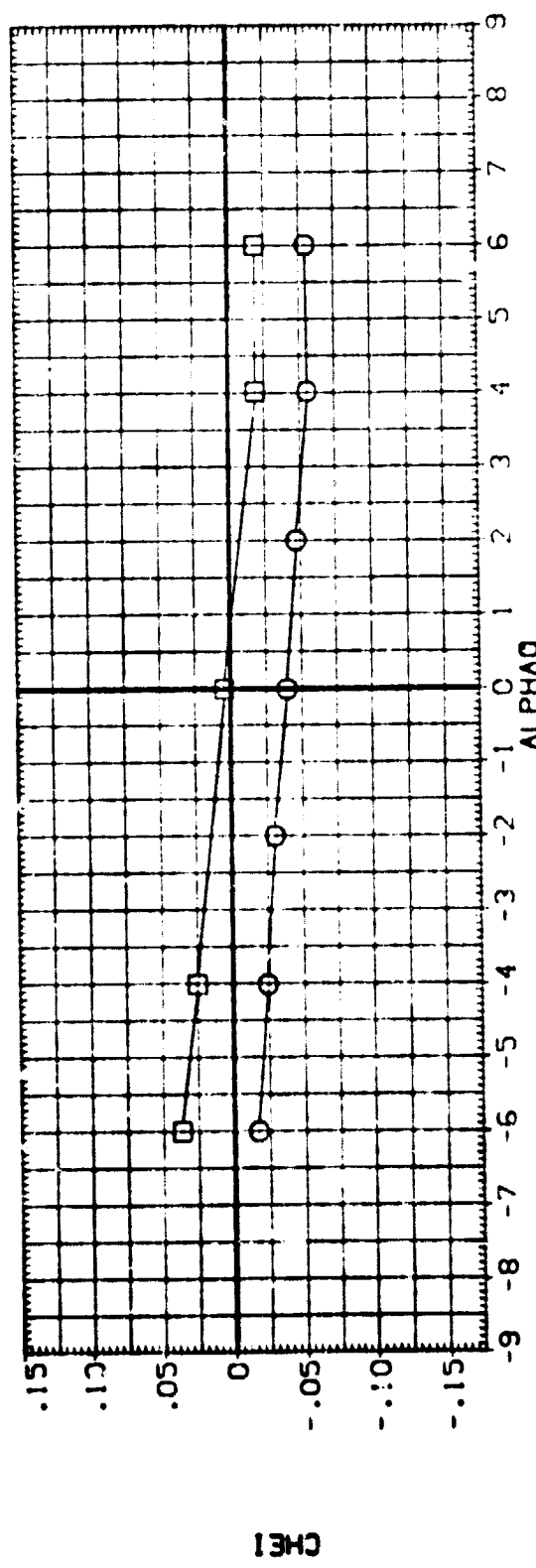


FIG. 33 ELEVON HINGE MOMENT COEFFICIENTS, $M=2.5$

(C)BET.0 = .00

DATA SET SYMBOL: 8
 CONFIGURATION DESCRIPTION: ANES97-019(1A81) LVAP ORBITER-ALL ML SEALED
 DATA NOT AVAILABLE

ELV-IB: 8.000
 ELV-OB: -4.000
 MACH: 2.500
 SPOBRK: .000
 REFERENCE INFORMATION:

	SO.FT.
SREF	2690.0000
LREF	1297.0000
BREF	1297.0000
XMRP	976.0000
YMRP	.0000
ZMRP	400.0000
SCALE	.0300

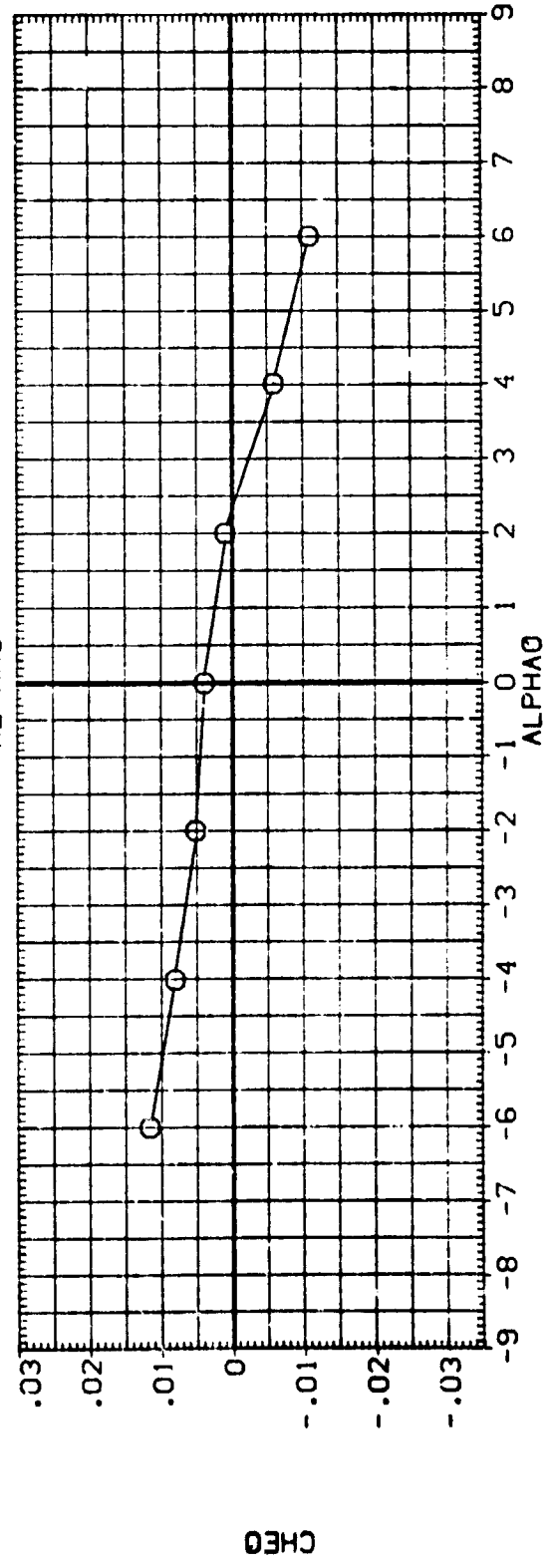
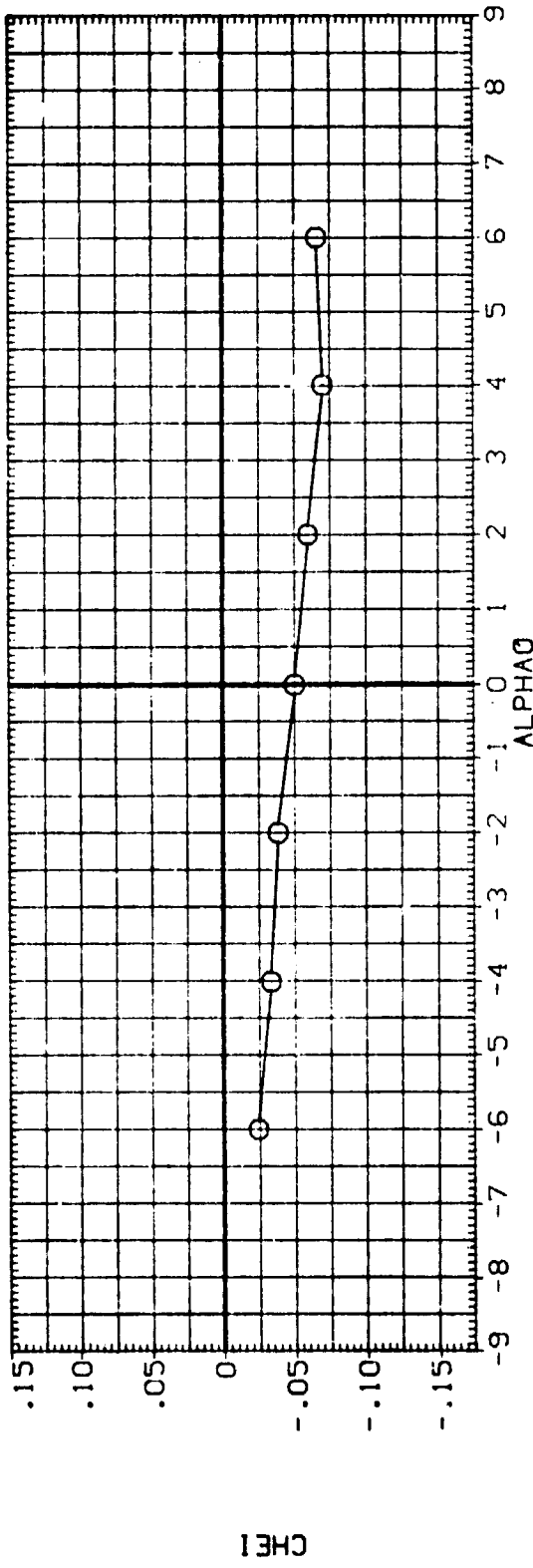


FIG. 33 ELEVON HINGE MOMENT COEFFICIENTS, M=2.5

(E)BETA0 = 2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-2B	MACH	SPCRK	REFERENCE INFORMATION
(METH2)	AMES97-019(IAB1) LVAP CRB(ITER-ALL HL SEALED	8.000	-4.000	2.500	.000	SREF 2690.0000 30.FT.
(METH2)	AMES97-019(IAB1) LVAP CRB(ITER-ALL HL SEALED	.000	.000	2.500	.000	LREF 1297.0000 IN.
						BREF 1297.0000 IN.
						YMRP 976.0000 IN.
						ZMRP .0000 IN.
						SCALE 400.0000 IN.

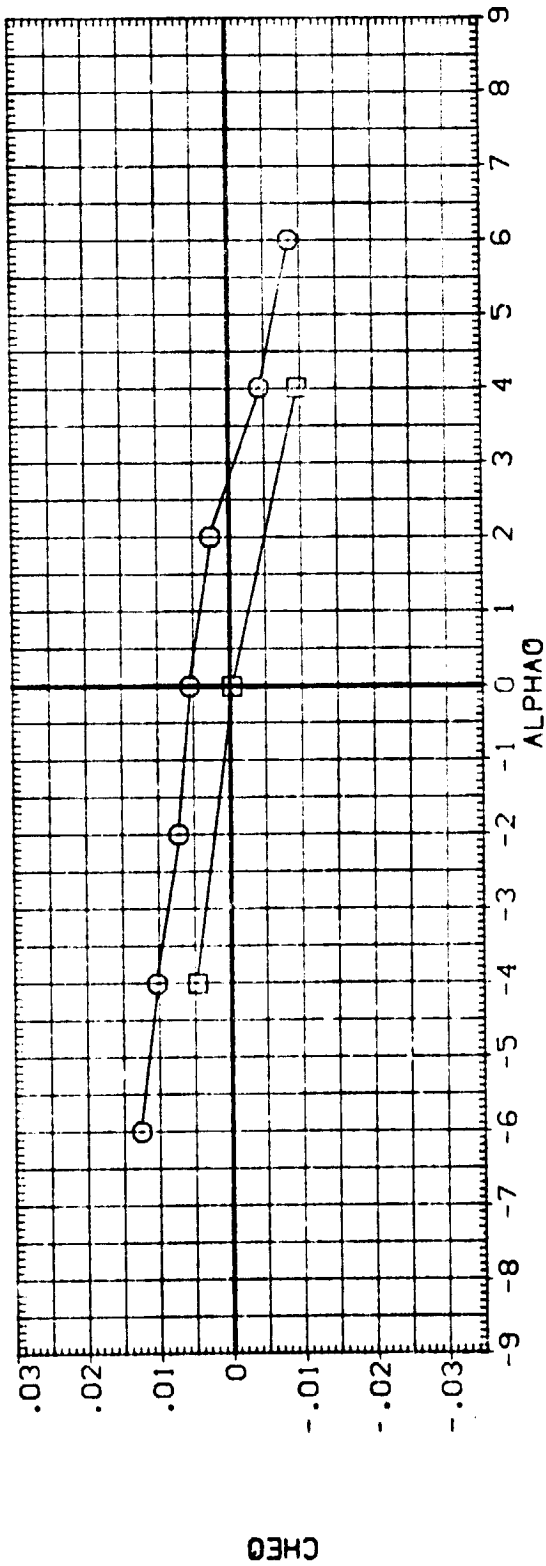
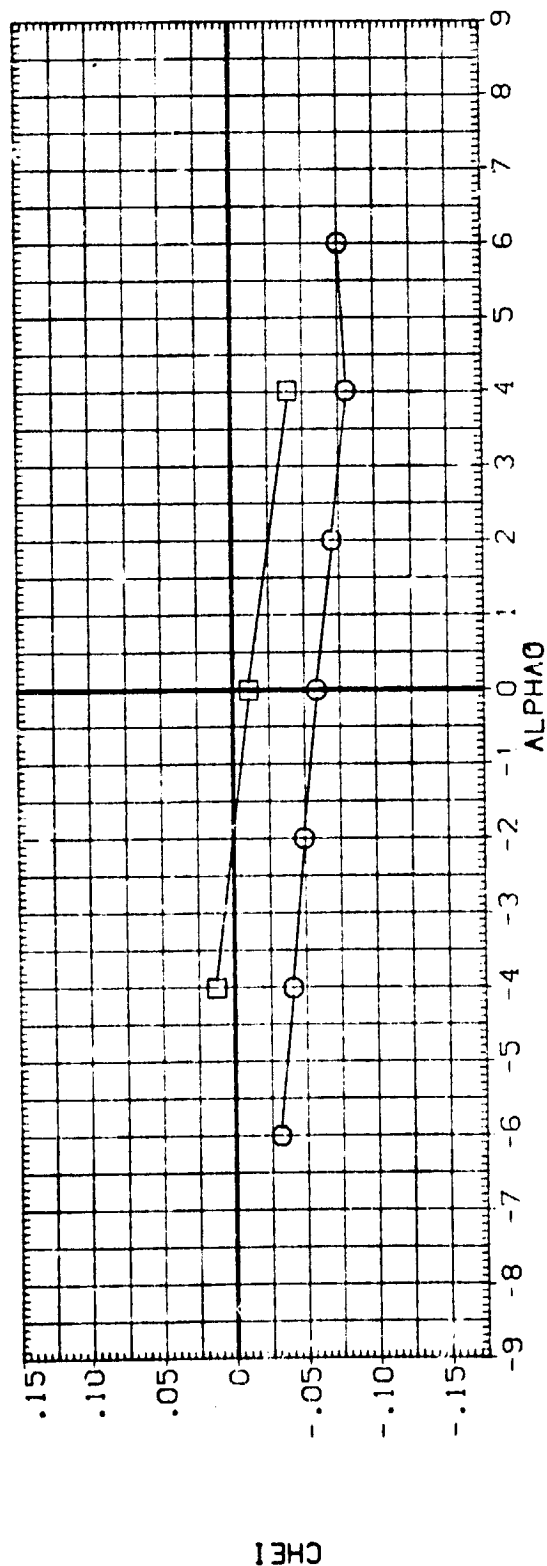


FIG. 33 ELEVEN HINGE MOMENT COEFFICIENTS, M=2.5

(F)BETA0 = 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRK	REFERENCE INFORMATION
(METM38)	AVES97-019(1A81) LVAP ORBITER-ALL M SEALED	8.000	-4.000	2.500	.000	SREF 2690.0000 SQ.FT.
(METM42)	AVES97-019(1A81) LVAP ORBITER-ALL M SEALED	.000	.000	2.500	.000	LREF 1297.0000 IN.
						BREF 1297.0000 IN.
						YMRP 976.0000 IN. XT
						ZMRP 400.0000 IN. YT
						SCALE .0300

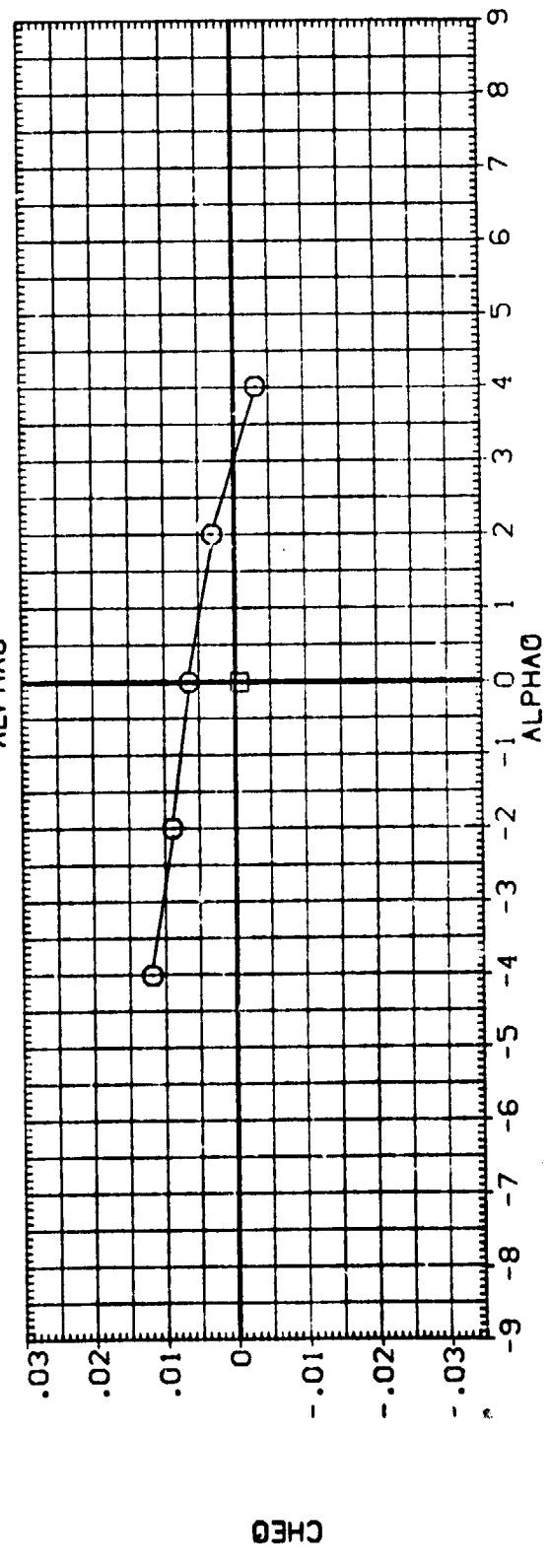
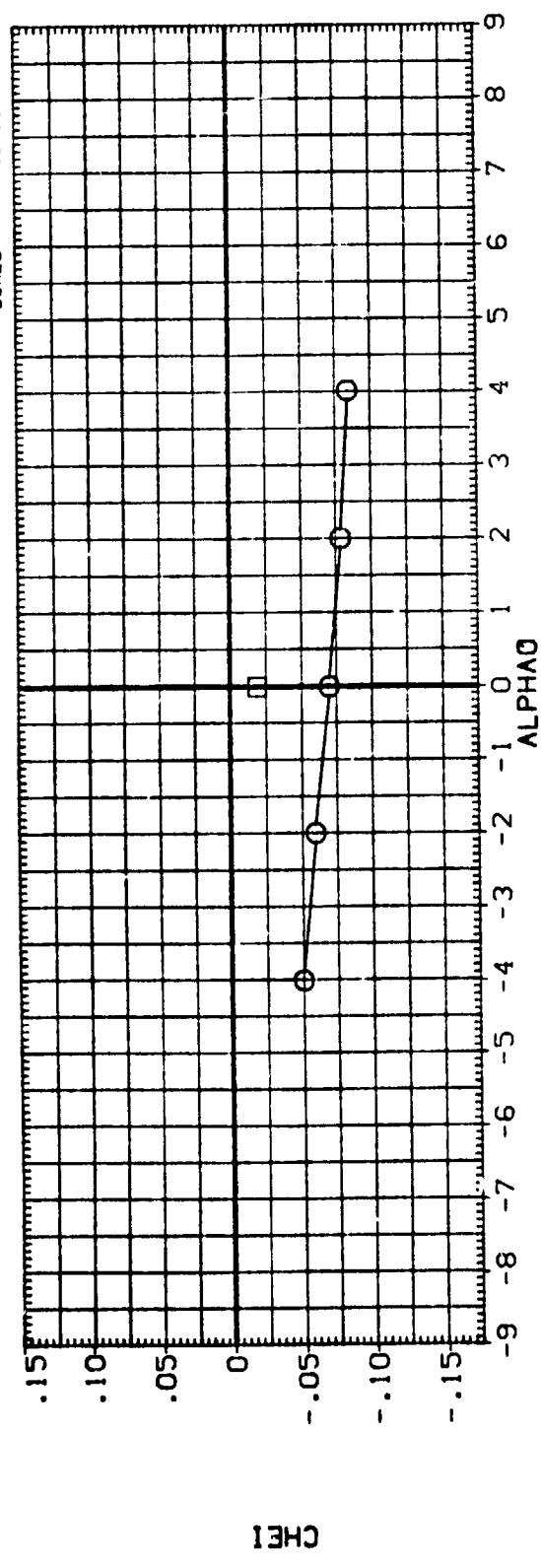


FIG. 33 ELEVON HINGE MOMENT COEFFICIENTS, M=2.5

(GJBET 0 = 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-IB	ELV-OB	MACH	SPDRK	REFERENCE INFORMATION
(SET039)	AMES97-019(IAB1) LVAP CRBITTER-ALL HL SEALED	.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(SET040)	AMES97-019(IAB1) LVAP CRBITTER-ALL HL SEALED	.000	.000	2.000	.000	LREF 1297.0000 IN.
(SET041)	AMES97-019(IAB1) LVAP CRBITTER-ALL HL SEALED	.000	.000	2.200	.000	BREF 1297.0000 IN.
(SET042)	AMES97-019(IAB1) LVAP CRBITTER-ALL HL SEALED	.000	.000	2.500	.000	XMRP 976.0000 IN. XT
						YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

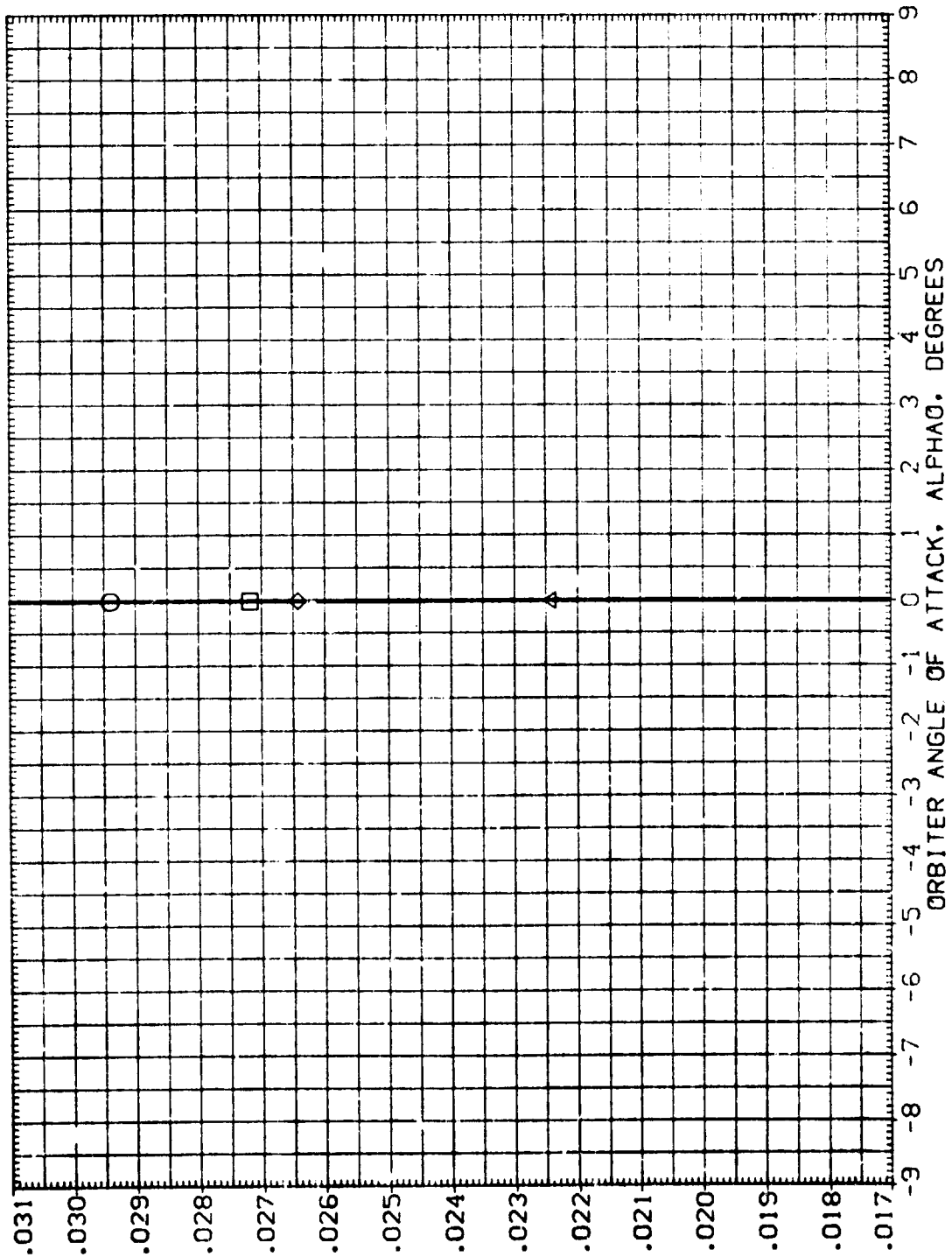


FIG. 34 ORBITER BASE AXIAL FORCE COEFFICIENT

(A)BET 10 = -5.00

REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ORBITER-ALL	HL	SEALED	ELV-IB	ELV-OB	MACH	SPDRK	REFERENCE INFORMATION
(SET039)	APES97-019(IAB1) LVAP	ORBITER-ALL	HL	SEALED	.000	.000	1.550	.000	SREF 2690.0000
(SET040)	APES97-019(IAB1) LVAP	ORBITER-ALL	HL	SEALED	.000	.000	2.000	.000	LREF 1297.0000
(SET041)	APES97-019(IAB1) LVAP	ORBITER-ALL	HL	SEALED	.000	.000	2.300	.000	BREF 1297.0000
(SET042)	APES97-019(IAB1) LVAP	ORBITER-ALL	HL	SEALED	.000	.000	2.500	.000	XMRP 976.0000
									YMRP .0000
									ZMRP .0000
									SCALE 400.0000
									IN. XT
									IN. YT
									IN. ZT

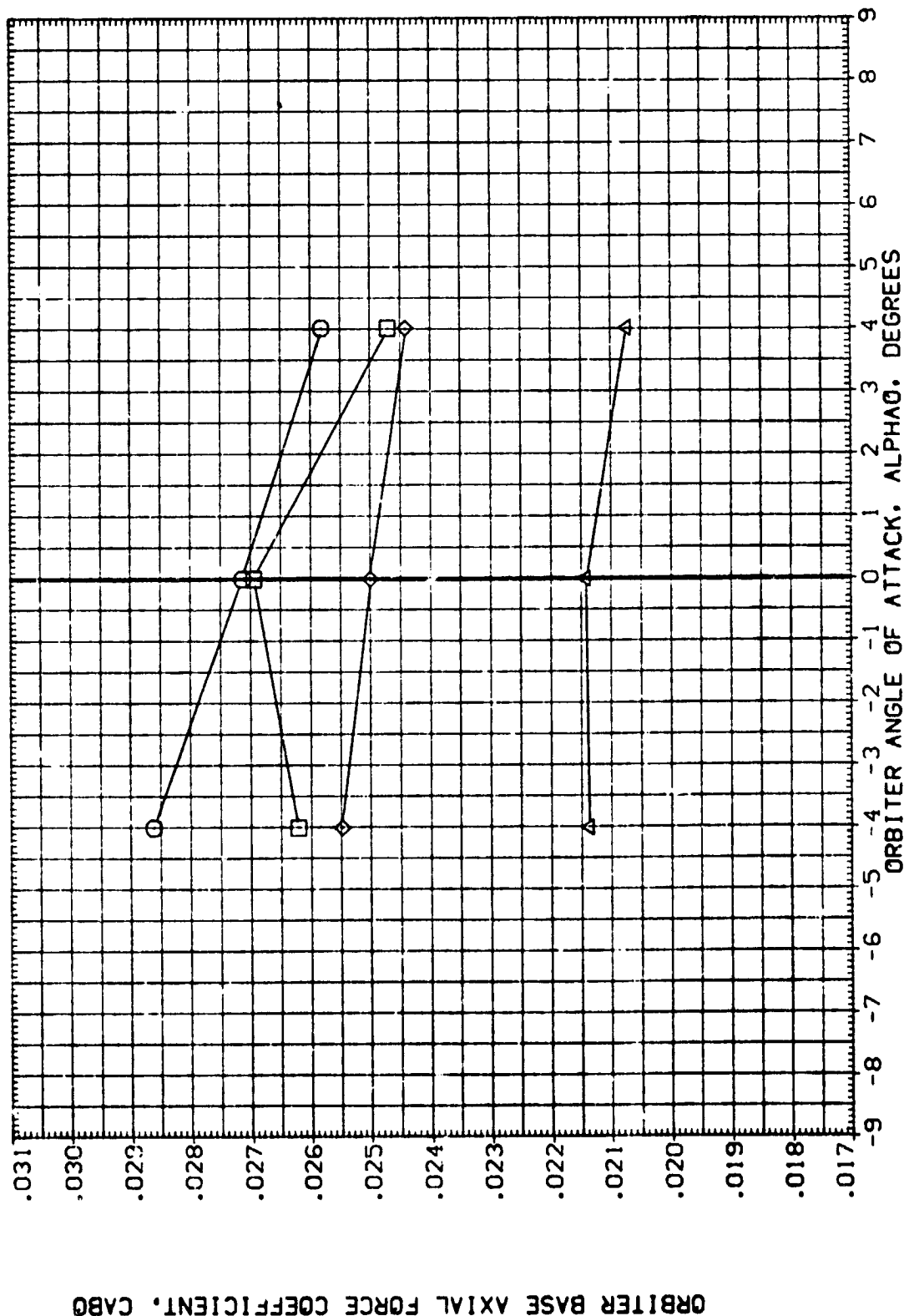


FIG. 34 ORBITER BASE AXIAL FORCE COEFFICIENT

(B)BETAD = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-03	MACH	SPOBRK	REFERENCE INFORMATION
(SET039)	AMES97-019(IAB1) LVAP	.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(SET040)	AMES97-019(IAB1) LVAP	.000	.000	2.000	.000	LREF 1297.0000 IN.
(SET041)	AMES97-019(IAB1) LVAP	.000	.000	2.200	.000	BREF 1297.0000 IN.
(SET042)	AMES97-019(IAB1) LVAP	.000	.000	2.500	.000	XMRP 976.0000 IN. XT
						YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

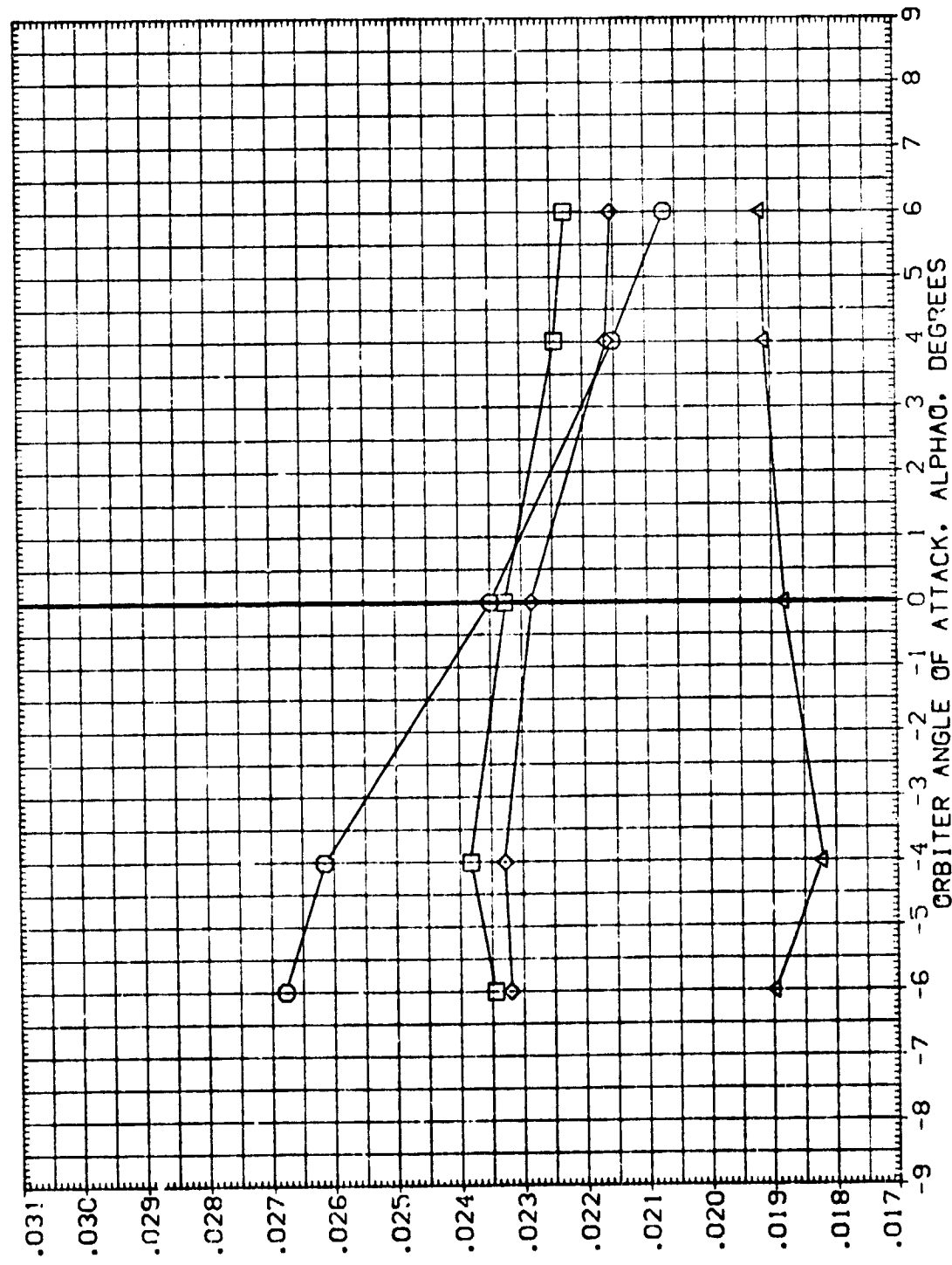


FIG. 34 ORBITER BASE AXIAL FORCE COEFFICIENT

(C)BET10 = .00

DATA SET SYMBOL	CONF:GURATION DESCRIPTION	ORBITER-ALL	HL	SEALED	ELV-19	ELV-08	MACH	SPOBRK	REFERENCE INFORMATION
(SET039)	AMES97-019(1A81) LVAP	ORBITER-ALL	HL	SEALED	.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(SET040)	AMES97-019(1A81) LVAF	ORBITER-ALL	HL	SEALED	.000	.000	2.000	.000	LREF 1297.0000 IN.
(SET041)	AMES97-019(1A81) LVAP	ORBITER-ALL	HL	SEALED	.000	.000	2.200	.000	BREF 1297.0000 IN.
(SET042)	AMES97-019(1A81) LVAP	ORBITER-ALL	HL	SEALED	.000	.000	2.500	.000	XMRP 976.0000 IN.
									YMRP .0000 IN.
									ZMRP 400.0000 IN.
									SCALE .0300

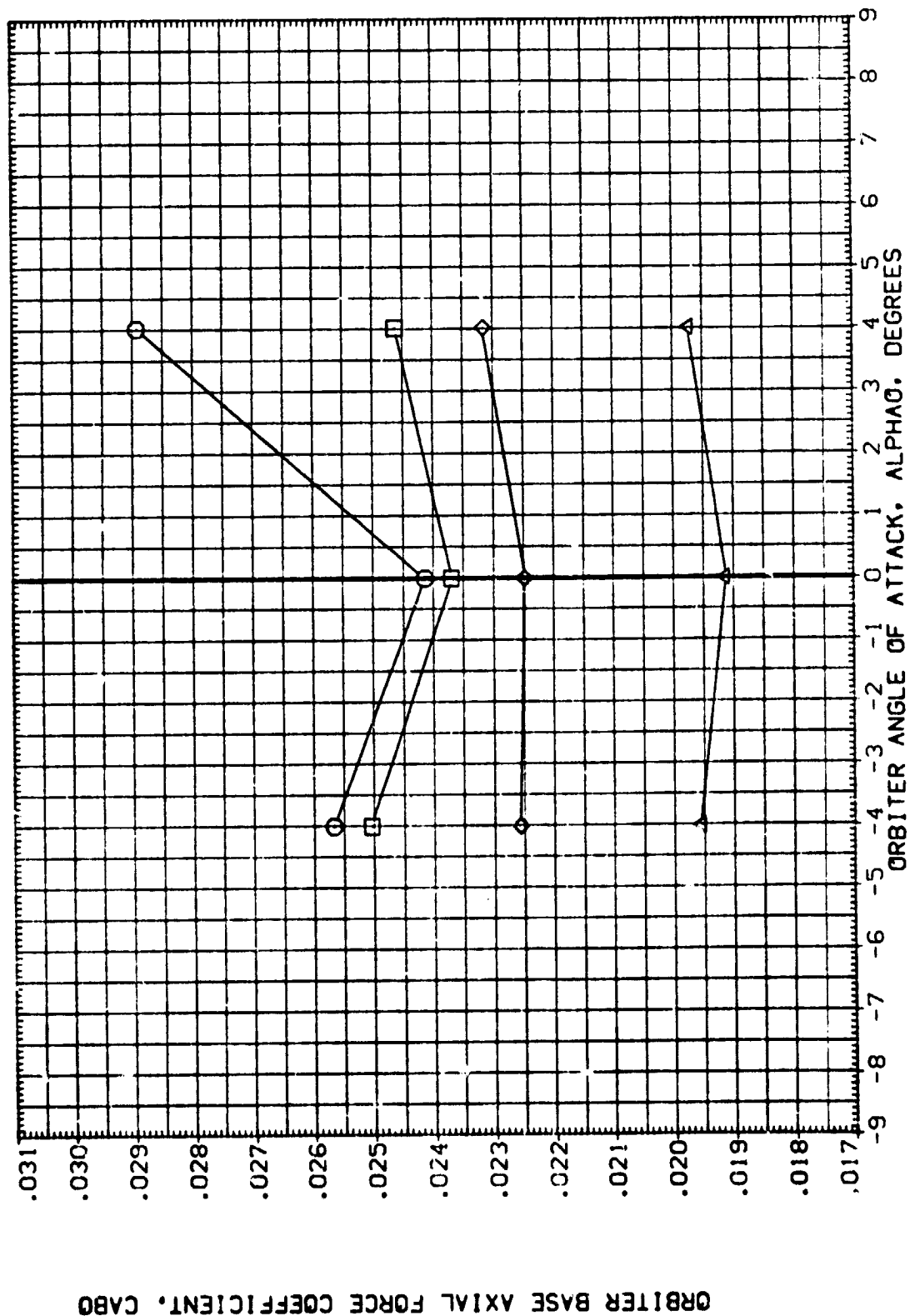


FIG. 34 ORBITER BASE AXIAL FORCE COEFFICIENT

(ORBITER) = 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(SET039)	AMES97-019(IAB1) LVAP	.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(SET040)	AMES97-019(IAB1) LVAP	.000	.000	2.000	.000	LREF 1297.0000 IN.
(SET041)	AMES97-019(IAB1) LVAP	.000	.000	2.200	.000	BREF 1297.00.0 IN. XT
(SET042)	AMES97-019(IAB1) LVAP	.000	.000	2.500	.000	YMRP 976.0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

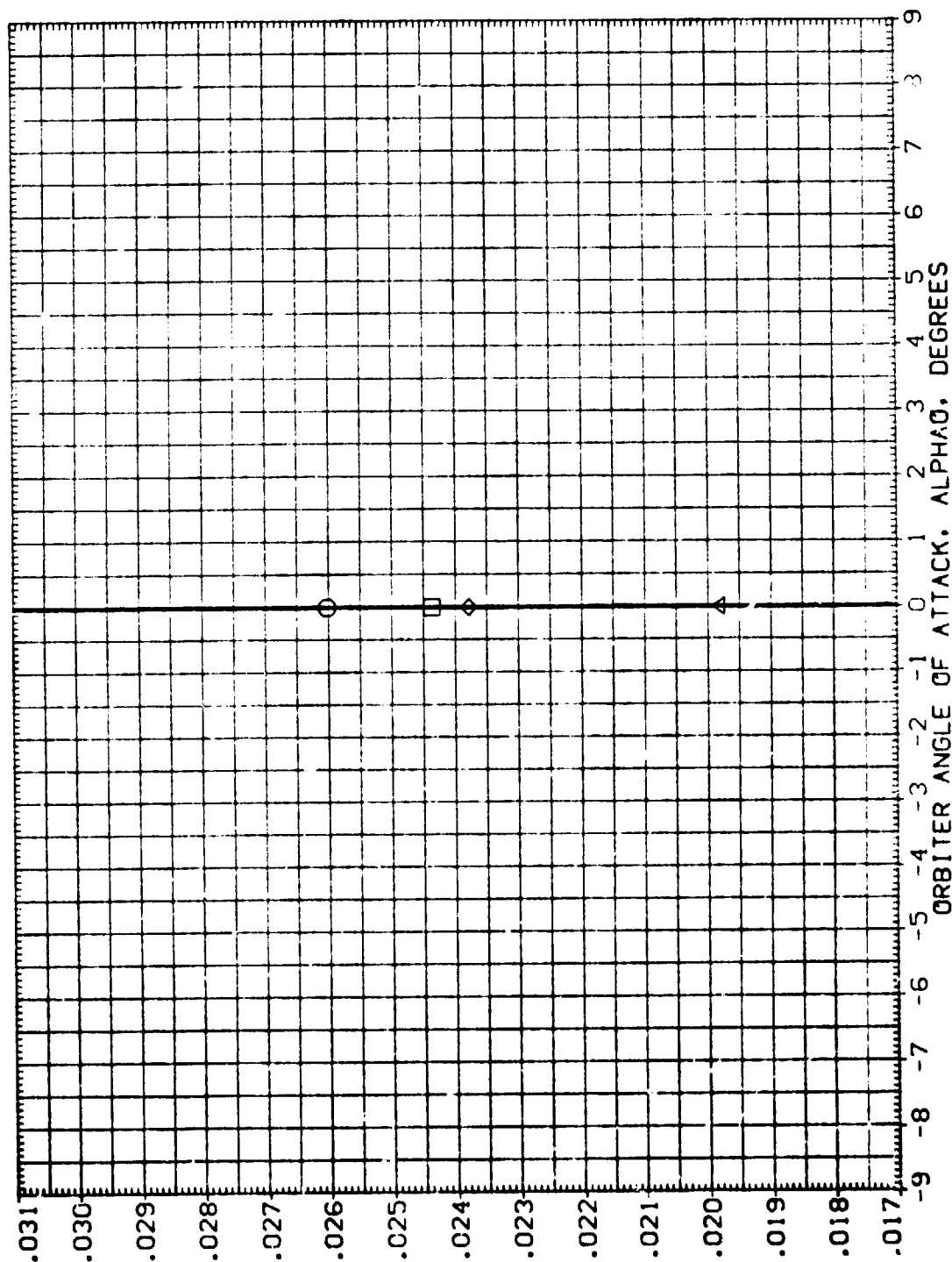
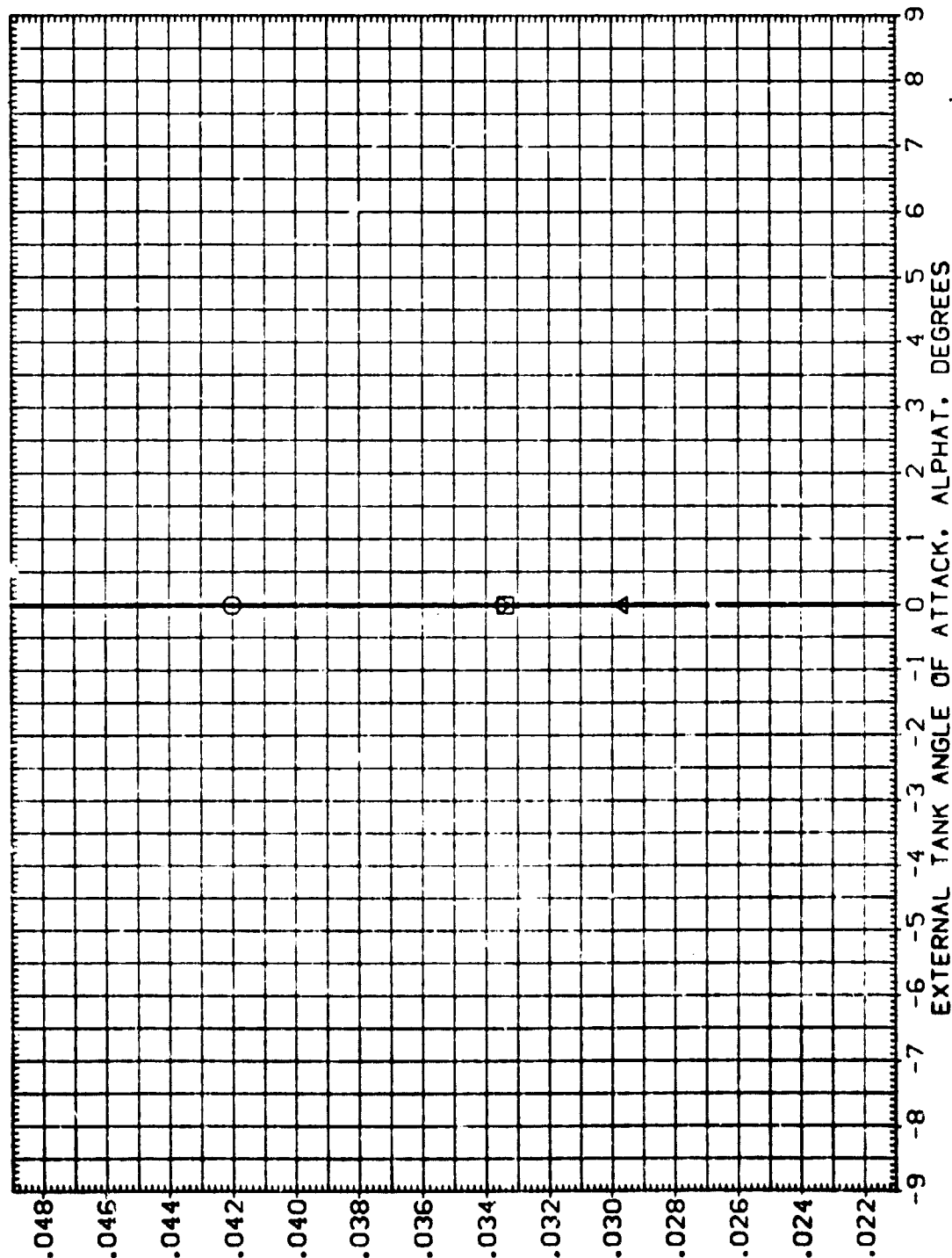


FIG. 34 ORBITER BASE AXIAL FORCE COEFFICIENT

(E)BET.0 = 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(SET139)	AMES97-019(IAB1) LVAP TANK	.000	.000	1.550	.000	SREF 2630.0000 SQ.FT.
(SET140)	AMES97-019(IAB1) LVAP TANK	.000	.000	2.000	.000	LREF 1297.0000 IN.
(SET141)	AMES97-019(IAB1) LVAP TANK	.000	.000	2.200	.000	BREF 1297.0000 IN.
(SET142)	AMES97-019(IAB1) LVAP TANK	.000	.000	2.500	.000	YMRP 976.0000 IN.
						ZMRP .0000 IN.
						SCALE .0300



EXTERNAL TANK BASE AXIAL FORCE COEFFICIENT, CABET

FIG. 35 EXTERNAL TANK BASE AXIAL FORCE COEFFICIENT

(ABET.1) = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SPUBRK	REFERENCE INFORMATION
(SET139)	AME597-019(IAB1) LVAP TANK	.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(SET140)	AME597-019(IAB1) LVAP TANK	.000	.000	2.000	.000	LREF 1297.0000 IN.
(SET141)	AME597-019(IAB1) LVAP TANK	.000	.000	2.200	.000	BREF 976.0000 IN. XT
(SET142)	AME597-019(IAB1) LVAP TANK	.000	.000	2.500	.000	XMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

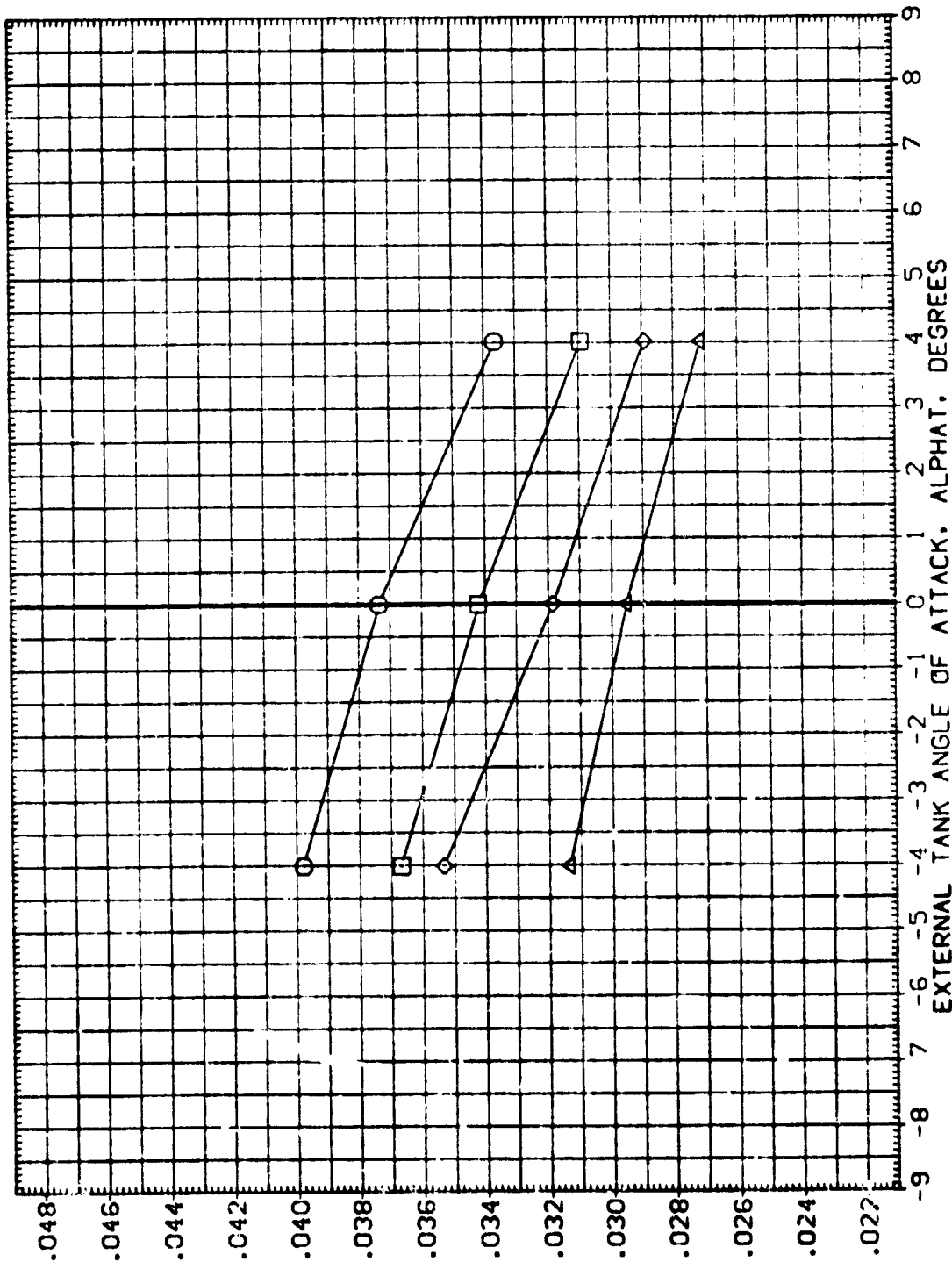


FIG. 35 EXTERNAL TANK BASE AXIAL FORCE COEFFICIENT

(B)BETAT = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION	
(SETT39)	AMES97-019(1A81) LVAP TANK	.000	.000	1.550	.000	SREF	2690.0000 SO.FT.
(SETT40)	AMES97-019(1A81) LVAP TANK	.000	.000	2.000	.000	LREF	1297.0000 IN.
(SETT41)	AMES97-019(1A81) LVAP TANK	.000	.000	2.200	.000	BREF	1297.0000 IN.
(SETT42)	AMES97-019(1A81) LVAP TANK	.000	.000	2.500	.000	YMRP	976.0000 IN.
						ZMRP	400.0000 IN.
						SCALE	.0300

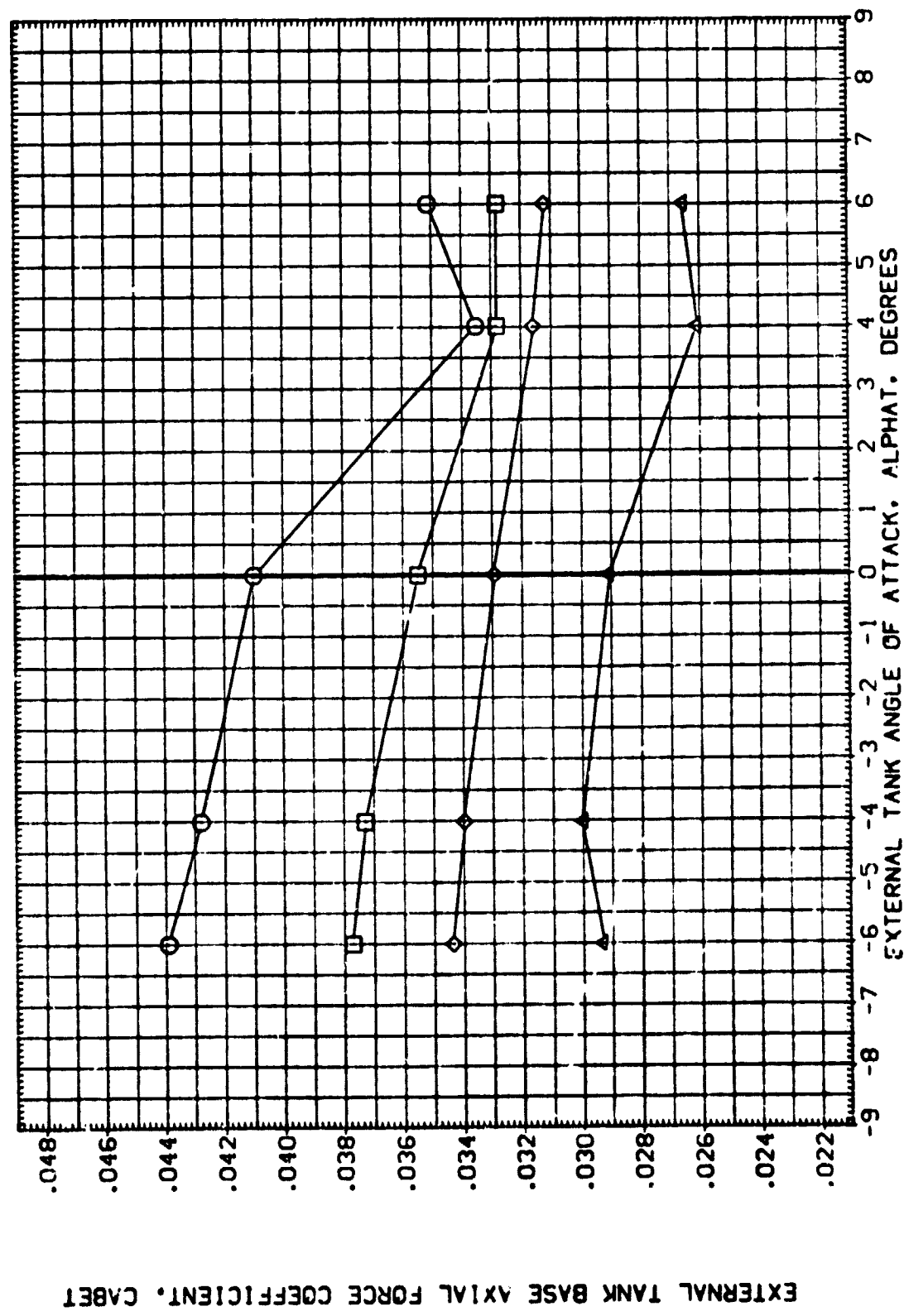


FIG. 35 EXTERNAL TANK BASE AXIAL FORCE COEFFICIENT.

(CABET) = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SUBSRK	REFERENCE INFORMATION
(SET139)	AMES97-019(1A81) LVAP TANK	.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(SET140)	AMES97-019(1A81) LVAP TANK	.000	.000	2.000	.000	LREF 1297.0000 IN.
(SET141)	AMES97-019(1A81) LVAP TANK	.000	.000	2.200	.000	BREF 1297.0000 IN.
(SET142)	AMES97-019(1A81) LVAP TANK	.000	.000	2.500	.000	XMRP 976.0000 IN. XT
						YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

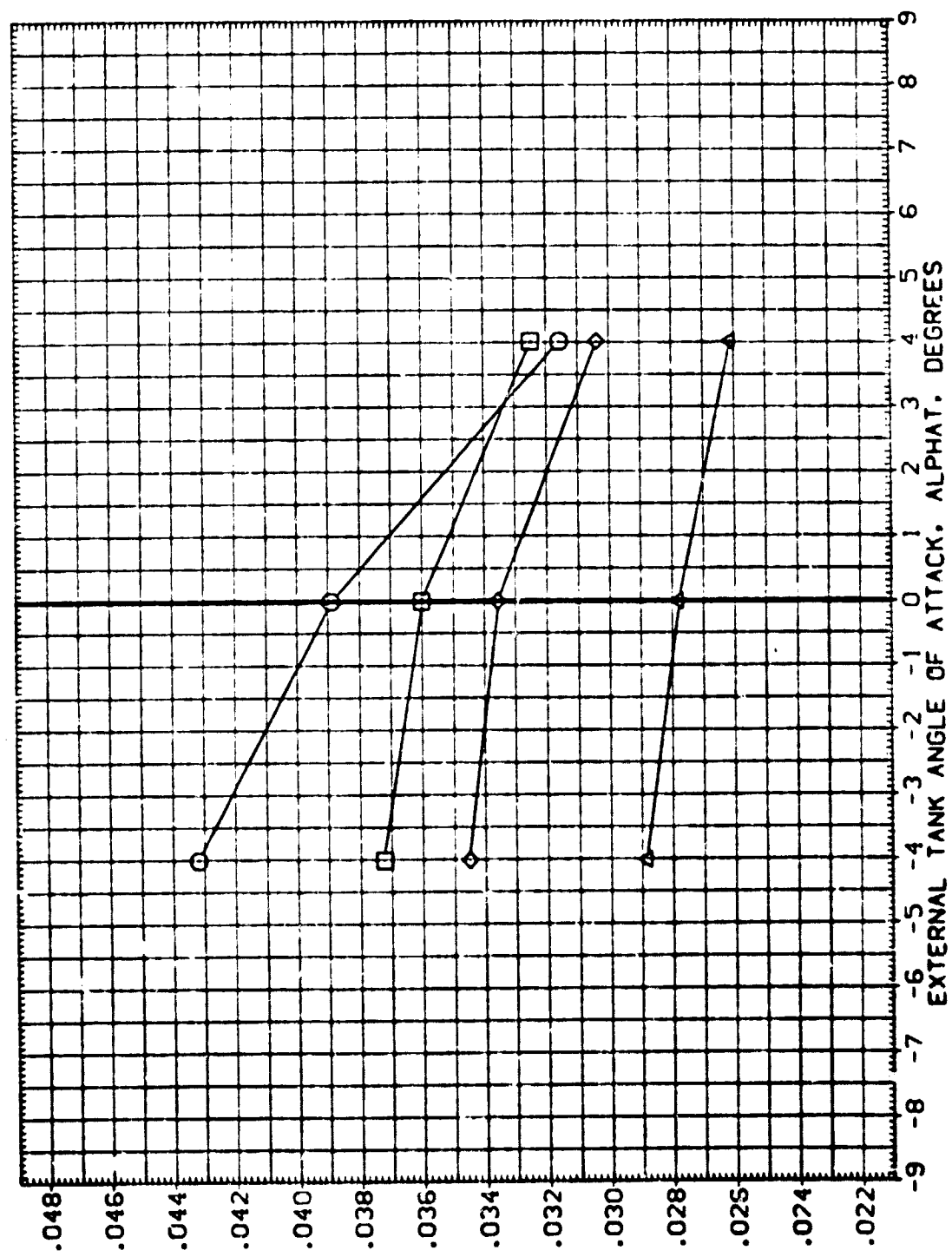


FIG. 35 EXTERNAL TANK BASE AXIAL FORCE COEFFICIENT

(DBETA) = 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-CB	MACH	SPDRK	REFERENCE INFORMATION
(SET139)	AW597-019(1A81) LVAP TANK	.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(SET140)	AW597-019(1A81) LVAP TANK	.000	.000	2.000	.000	LREF 1297.0000 IN.
(SET141)	AW597-019(1A81) LVAP TANK	.000	.000	2.200	.000	BREF 1297.0000 IN.
(SET142)	AW597-019(1A81) LVAP TANK	.000	.000	2.500	.000	XDRP 976.0000 IN. XT
						YDRP .0000 IN. YT
						ZDRP 400.0000 IN. ZT
						SCALE .0300

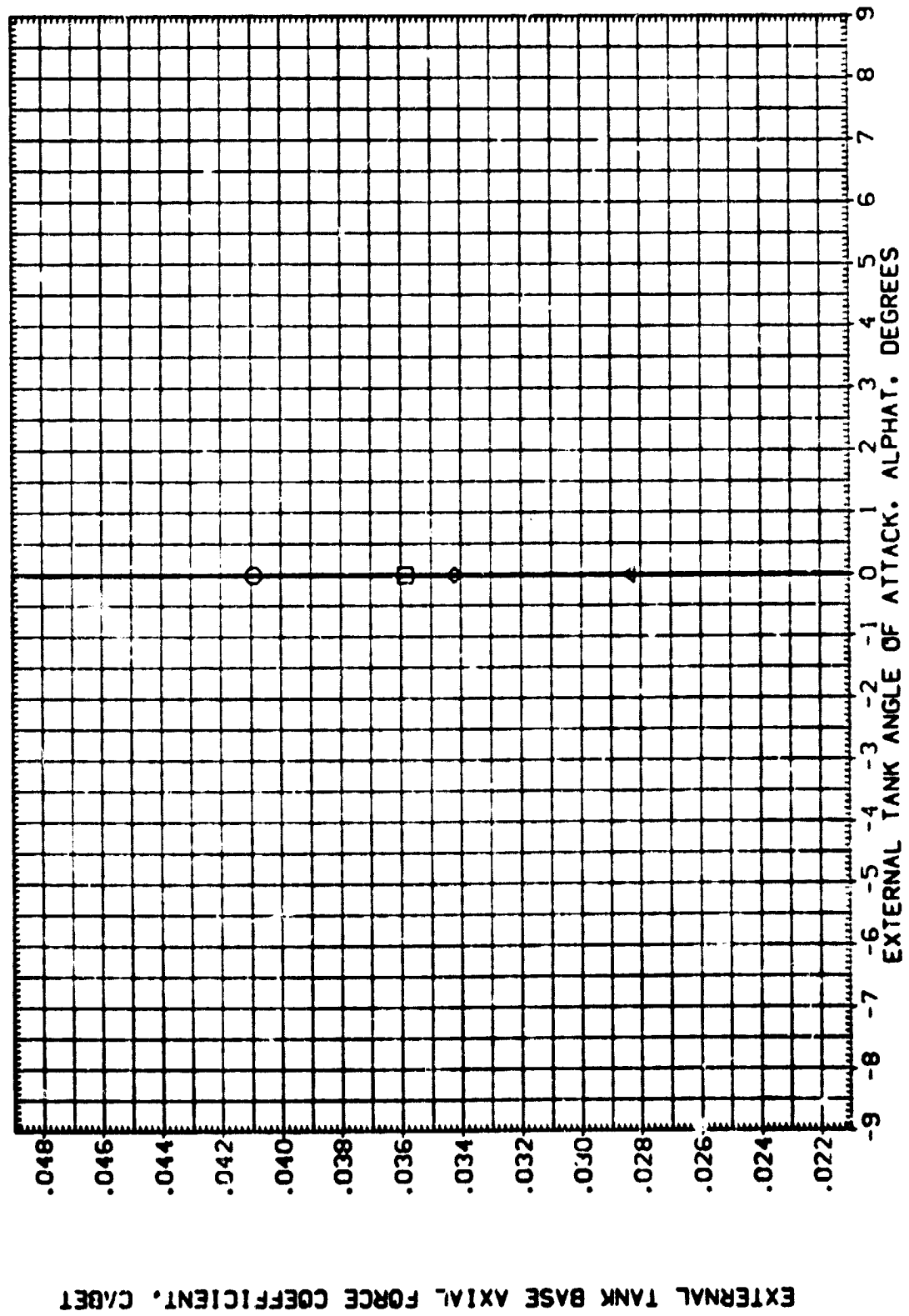


FIG. 35 EXTERNAL TANK BASE AXIAL FORCE COEFFICIENT

(E)BET.T = 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDBRM	REFERENCE INFORMATION	SO.FT.
(SETL39)	AME597-019(1A81) LVAP	.000	.000	1.550	.000	SREF 2690.0000	IN.
(SETL40)	AME597-019(1A81) LVAP	.000	.000	2.000	.000	LREF 1297.0000	IN.
(SETL41)	AME597-019(1A81) LVAP	.000	.000	2.500	.000	BREF 1297.0000	IN.
(SETL42)	AME597-019(1A81) LVAP	.000	.000	2.500	.000	XMRP .0000	IN.
						ZMRP .0000	IN.
						SCALE 400.0000	IN.
							XT
							ZT

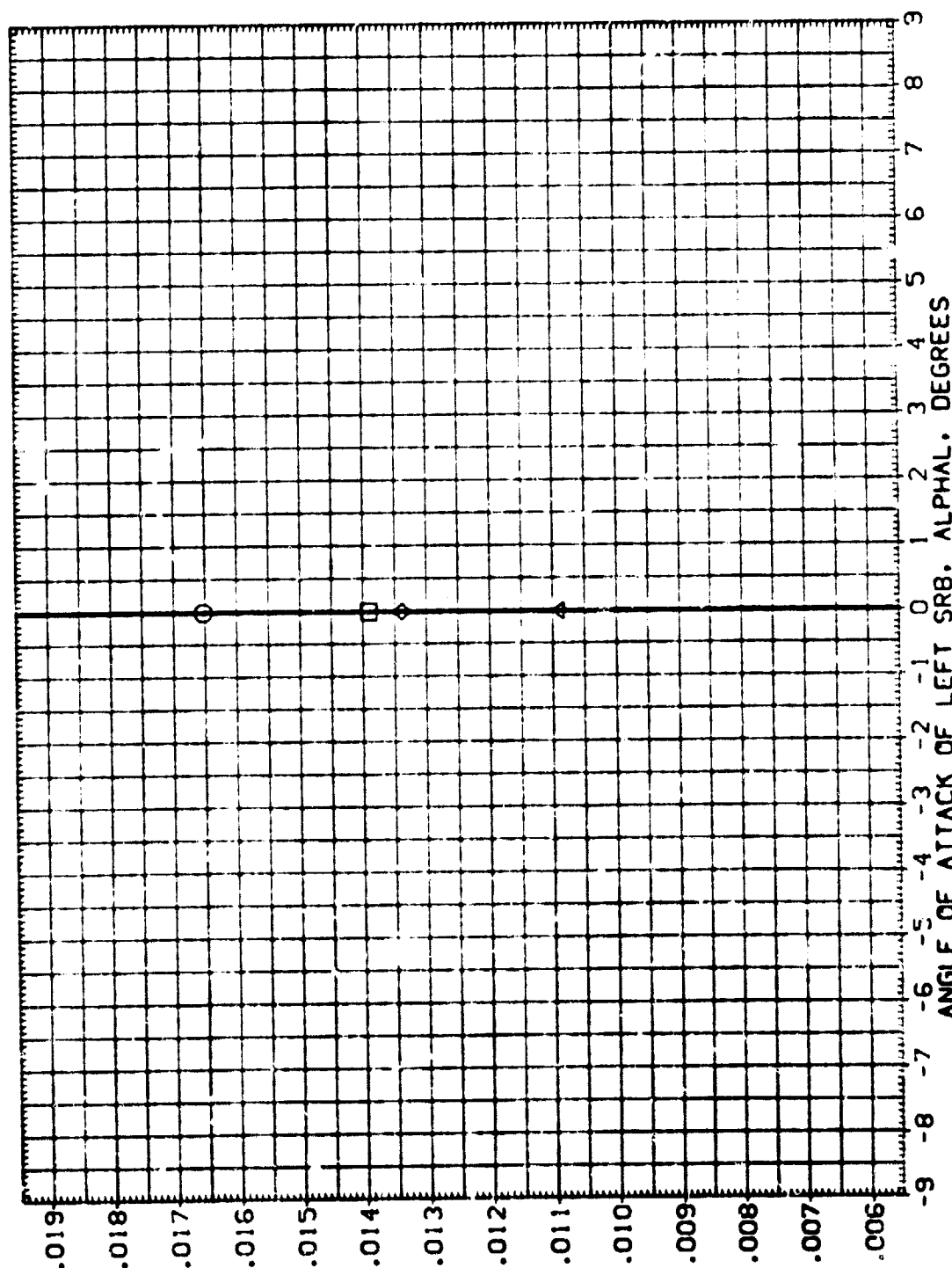
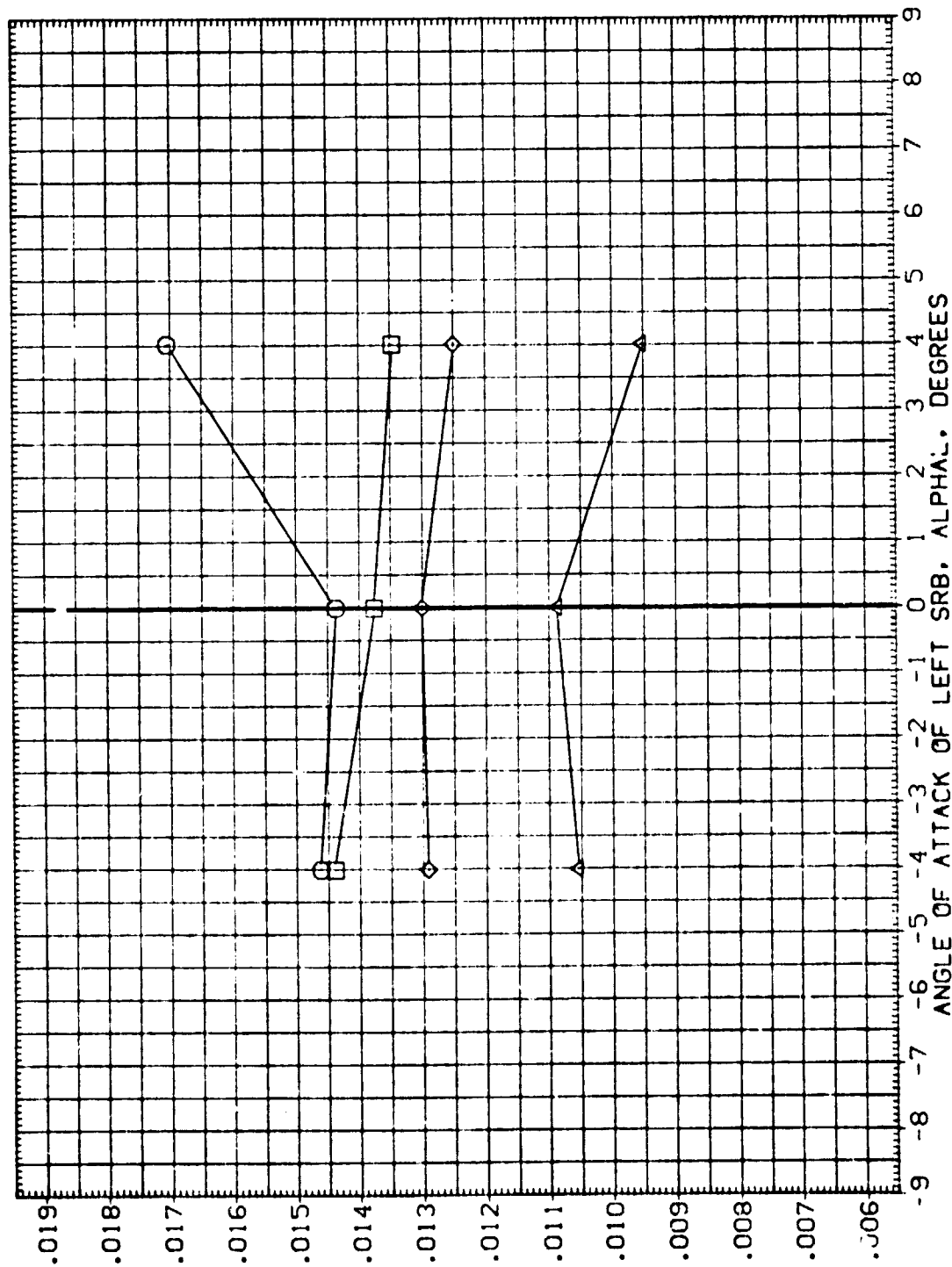


FIG. 3C LEFT SRB BASE AXIAL FORCE COEFFICIENT

(A) DETAIL = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-CB	MACH	SPOBRK	REFERENCE INFORMATION
(SETL39)	AMES97-019(1A81) LVAP	.000	.000	1.550	.000	SHEF 2690.0000 SQ.FT.
(SETL40)	AMES97-019(1A81) LVAP	.000	.000	2.000	.000	LREF 1297.0000 IN.
(SETL41)	AMES97-019(1A81) LVAP	.000	.000	2.200	.000	BREF 1297.0000 IN.
(SETL42)	AMES97-019(1A81) LVAP	.000	.000	2.500	.000	XMRP 976.0000 IN. XT
						YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300



SRB BASE AXIAL FORCE COEFFICIENT, CABS RB

FIG. 30 LEFT SRB BASE AXIAL FORCE COEFFICIENT

(B) BETAL = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPURK	REFERENCE INFORMATION
(SETL39)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(SETL40)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.000	.000	LREF 1297.0000 IN.
(SETL41)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.200	.000	BREF 1297.0000 IN.
(SETL42)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.500	.000	AMRP 976.0000 IN.
						VMRP .0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

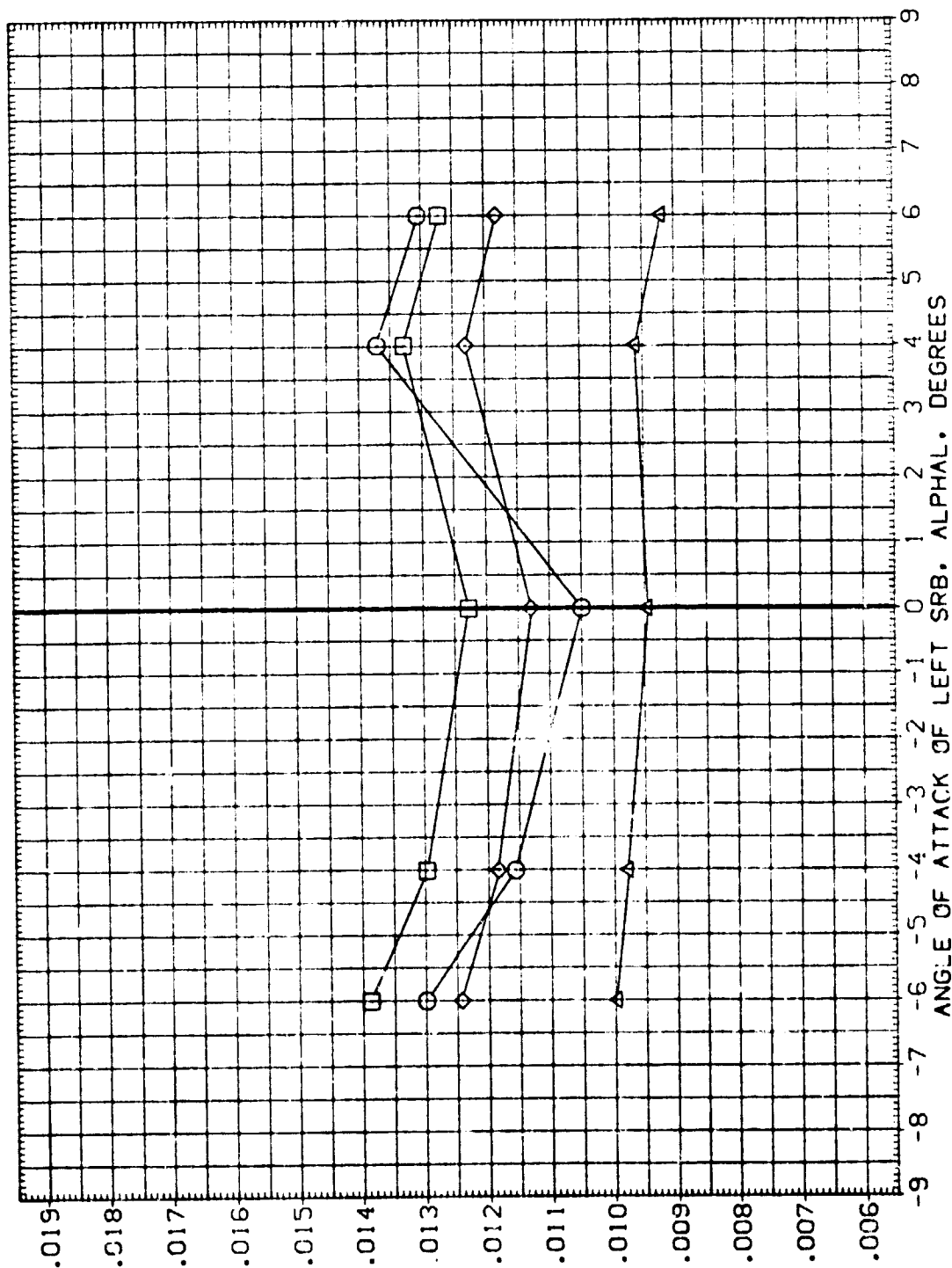


FIG. 36 LEFT SRB BASE AXIAL FORCE COEFFICIENT

(C)BETAL = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(SETL39)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(SETL40)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.000	.000	LREF 1297.0000 IN.
(SETL41)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.500	.000	BREF 1297.0000 IN.
(SETL42)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.500	.000	XMRF 976.0000 IN. XT
						YMRF .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

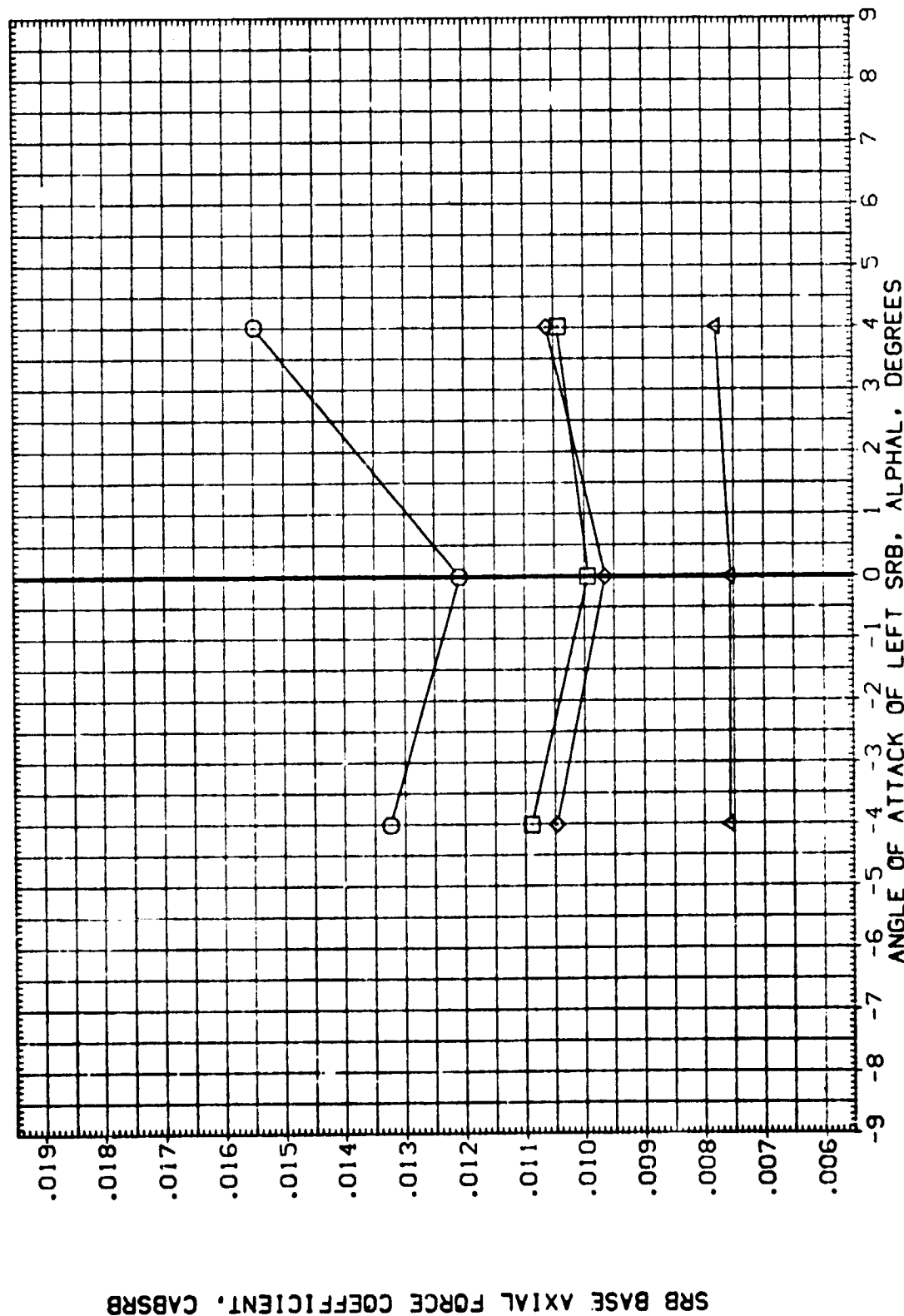


FIG. 36 LEFT SRB BASE AXIAL FORCE COEFFICIENT

(DBETAL = 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-QB	MACH	SPDRK	REFERENCE INFORMATION
(SETL39)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	1.500	.000	SREF 2690.0000 SQ.FT.
(SETL40)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.000	.000	LREF 1297.0000 IN.
(SETL41)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.500	.000	BREF 1297.0000 IN.
(SETL42)	AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED	.000	.000	2.500	.000	XMRP 975.0000 IN. XT
						ZMRP .0000 IN. YT
						SCALE .0300

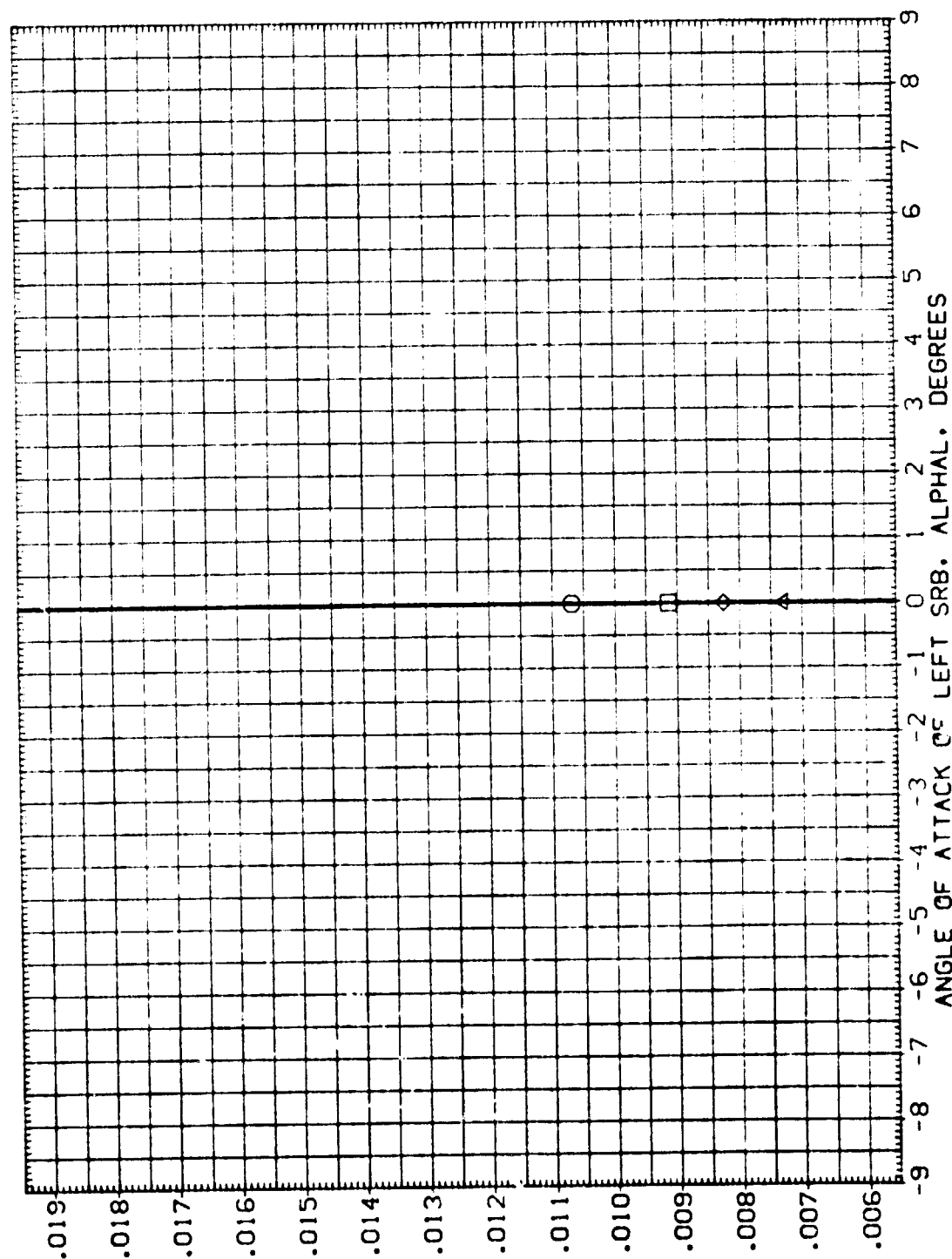


FIG. 36 LEFT SRB BASE AXIAL FORCE COEFFICIENT

(E)BETAL = 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALL	HL	SEALED	ELV-IB	ELV-OB	MACH	SPOBRK	REFERENCE INFORMATION	SO.FT.
(SETR29)	AMES97-019(IAB1) LVAP R-LRB	ALL	HL	SEALED	.000	.000	1.550	.000	SREF	2690.0000
(SETR40)	AMES97-019(IAB1) LVAP R-LRB	ALL	HL	SEALED	.000	.000	2.000	.000	LREF	1297.0000
(SETR41)	AMES97-019(IAB1) LVAP R-LRB	ALL	HL	SEALED	.000	.000	2.200	.000	BREF	1297.0000
(SETR42)	AMES97-019(IAB1) LVAP R-LRB	ALL	HL	SEALED	.000	.000	2.500	.000	XMRP	976.0000
									YMRP	.0000
									ZMRP	400.0000
									SCALE	.0300

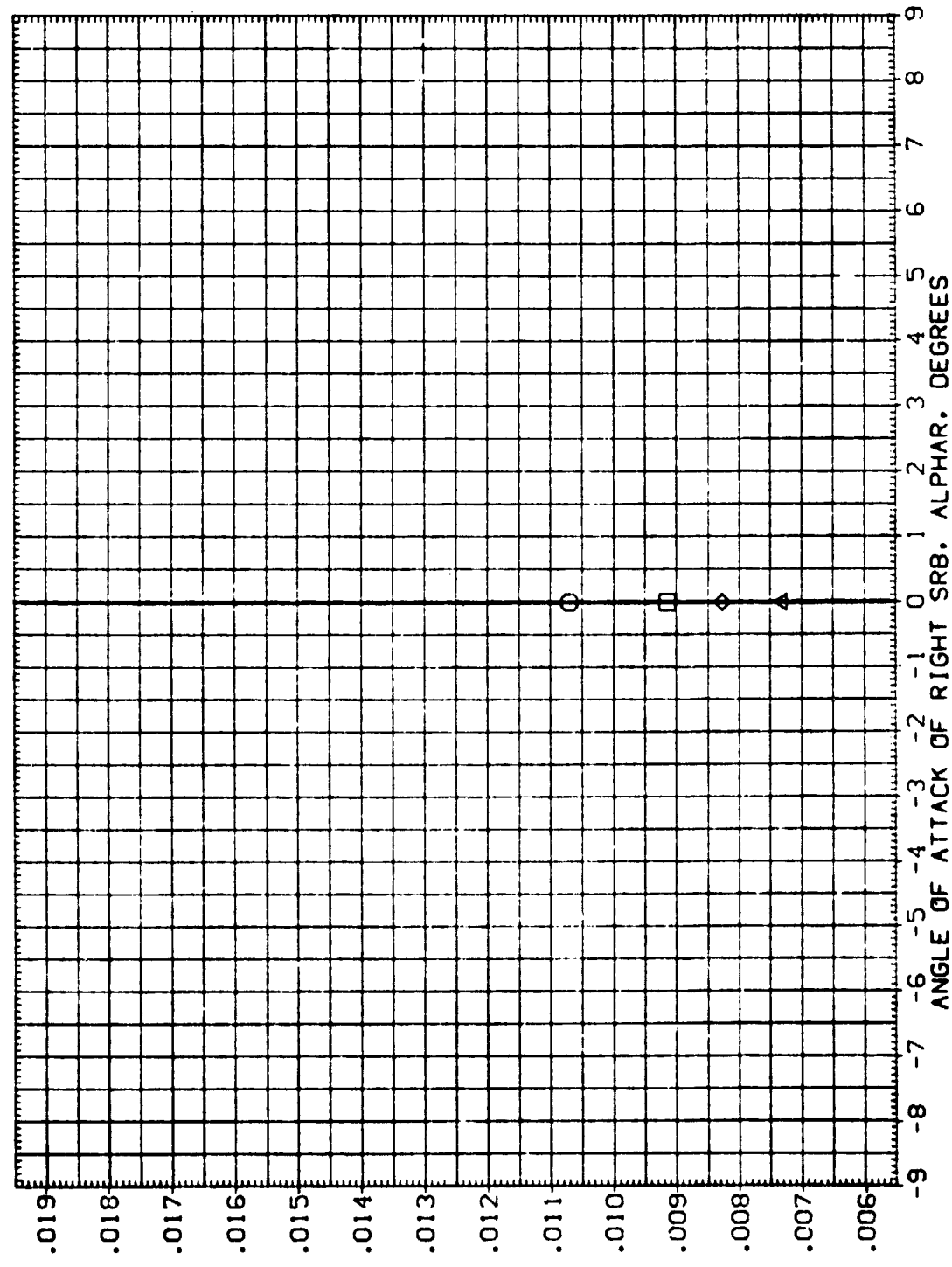


FIG. 37 RIGHT SRB BASE AXIAL FORCE COEFFICIENT

(ALPHAR = -6.00

DATA SET SYMBOL CONFIGURATION DESCRIPTION ALL HL SEALED ELV-13 ELV-28 MACH SPOBRK REFERENCE INFORMATION

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALL HL SEALED	ELV-13	ELV-28	MACH	SPOBRK	REFERENCE INFORMATION
(SETR39)	AMES97-019(IAB1) LVAP R-LRB	ALL HL SEALED	.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(SETR40)	AMES97-019(IAB1) LVAP R-LRB	ALL HL SEALED	.000	.000	2.000	.000	LREF 1297.0000 IN.
(SETR41)	AMES97-019(IAB1) LVAP R-LRB	ALL HL SEALED	.000	.000	2.200	.000	BREF 1297.0000 IN.
(SETR42)	AMES97-019(IAB1) LVAP R-LRB	ALL HL SEALED	.000	.000	2.500	.000	YMRP 976.0000 IN.
							ZMRP 400.0000 IN.
							SCALE .0300

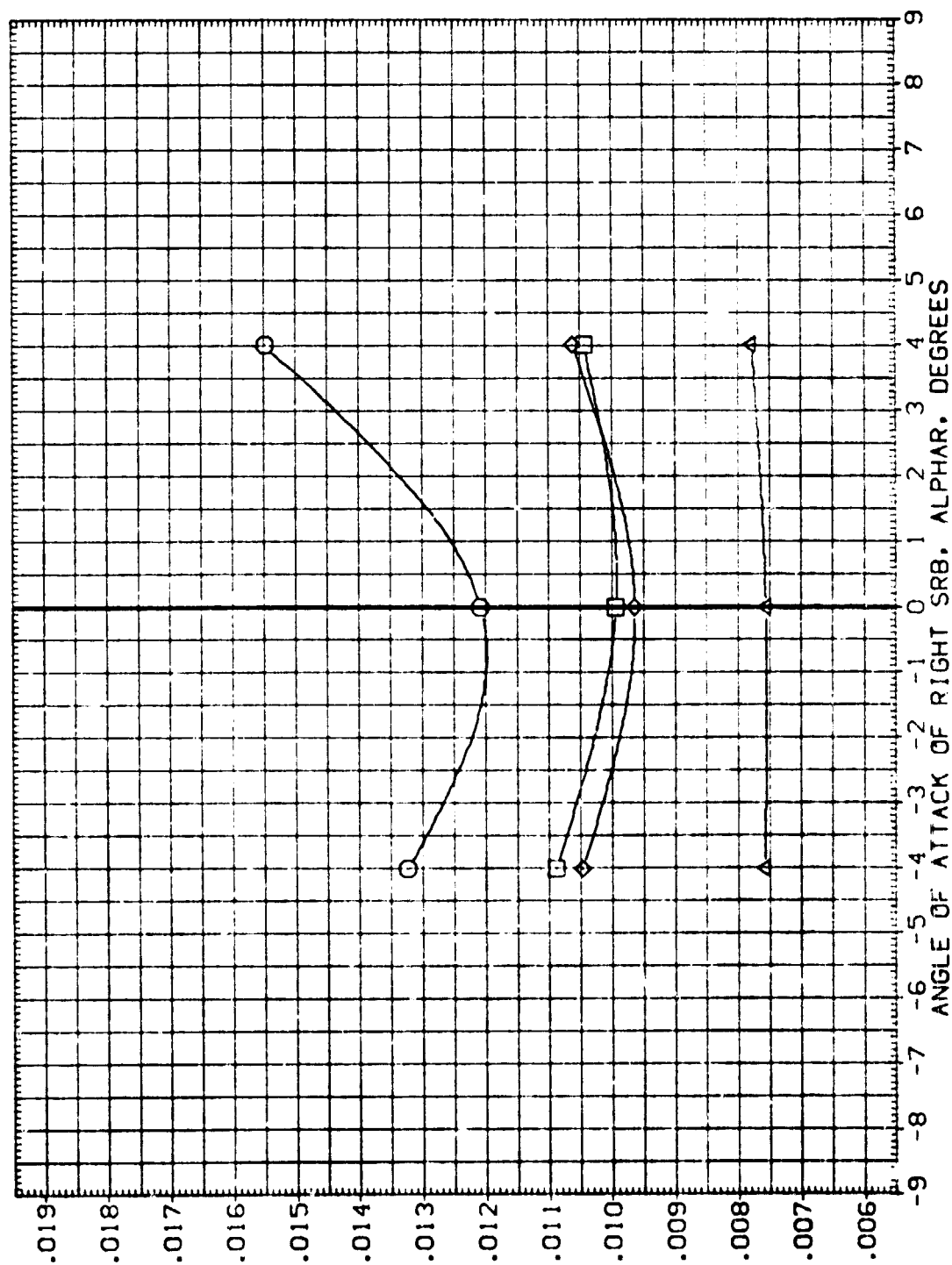


FIG. 37 RIGHT SRB BASE AXIAL FORCE COEFFICIENT

(B)BETAR = -4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALL HL SEALED	ELV-1B	ELV-0B	MACH	SPDRK	REFERENCE INFORMATION
(SETR39)	AMES97-019(IAB1) LVAP R-LRB	ALL HL SEALED	.000	.000	1.550	.000	SREF 2690.0000 SQ.FT.
(SETR40)	AMES97-019(IAB1) LVAP R-LRB	ALL HL SEALED	.000	.000	2.000	.000	LREF 1297.0000 IN.
(SETR41)	AMES97-019(IAB1) LVAP R-LRB	ALL HL SEALED	.000	.000	2.200	.000	BREF 1297.0000 IN.
(SETR42)	AMES97-019(IAB1) LVAP R-LRB	ALL HL SEALED	.000	.000	2.500	.000	XMRP 976.0000 IN. XT
							YMRP 400.0000 IN. YT
							ZMRP 400.0000 IN. ZT
							SCALE .0300

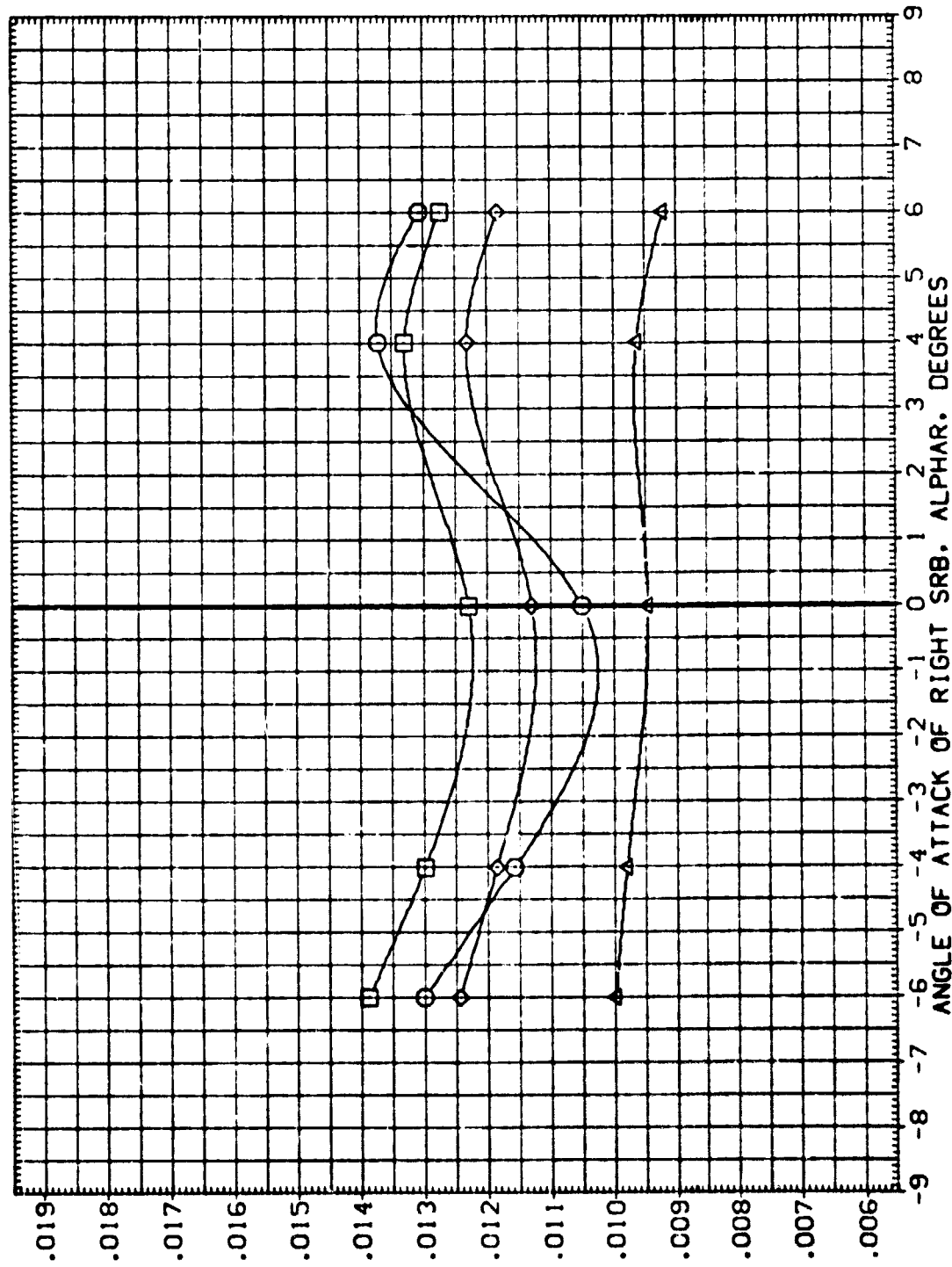


FIG. 37 RIGHT SRB BASE AXIAL FORCE COEFFICIENT

(C)BET,R = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALL ML SEALED	ELV-1B	ELV-2B	MACH	SPCRK	REFERENCE INFORMATION
(SETR39)	AMES97-019(IAB1) LVAP R-LRB	ALL ML SEALED	.000	.000	1.550	.000	SREF 2090.0000 SC.FT.
(SETR40)	AMES97-019(IAB1) LVAP R-LRB	ALL ML SEALED	.000	.000	2.000	.000	LREF 1297.0000 IN.
(SETR41)	AMES97-019(IAB1) LVAP R-LRB	ALL ML SEALED	.000	.000	2.200	.000	BREF 1297.0000 IN.
(SETR42)	AMES97-019(IAB1) LVAP R-LRB	ALL ML SEALED	.000	.000	2.500	.000	YMRP 976.0000 IN. XT
							ZMRP .0000 IN. YT
							SCALE 400.0000 IN. ZT

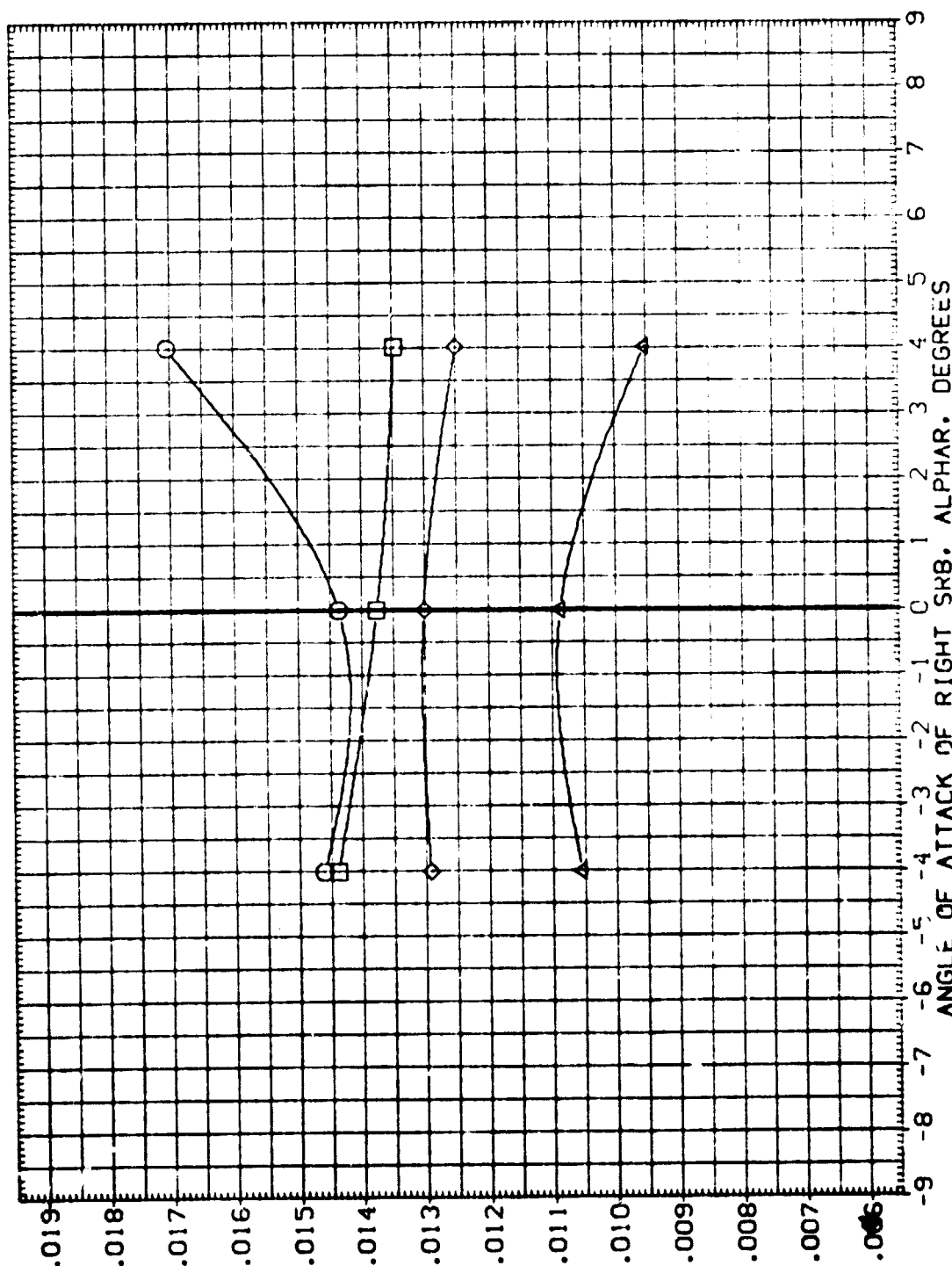


FIG. 37 RIGHT SRB BASE AXIAL FORCE COEFFICIENT

(O) BETAR = 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	MACH	SP09RK	REFERENCE INFORMATION
(SETR39)	AMES97-019(IAB1) LVAP R-LRB	.000	.000	1.550	.000	SREF 2590.0000 SQ.FT.
(SETR40)	AMES97-019(IAB1) LVAP R-LRB	.000	.000	2.000	.000	LREF 1297.0000 IN.
(SETR41)	AMES97-019(IAB1) LVAP R-LRB	.000	.000	2.200	.000	BREF 1297.0000 IN.
(SETR42)	AMES97-019(IAB1) LVAP R-LRB	.000	.000	2.500	.000	YMRP 976.0000 IN. XT
						ZMRP .0000 IN. YT
						SCALE 400.0000 IN. ZT

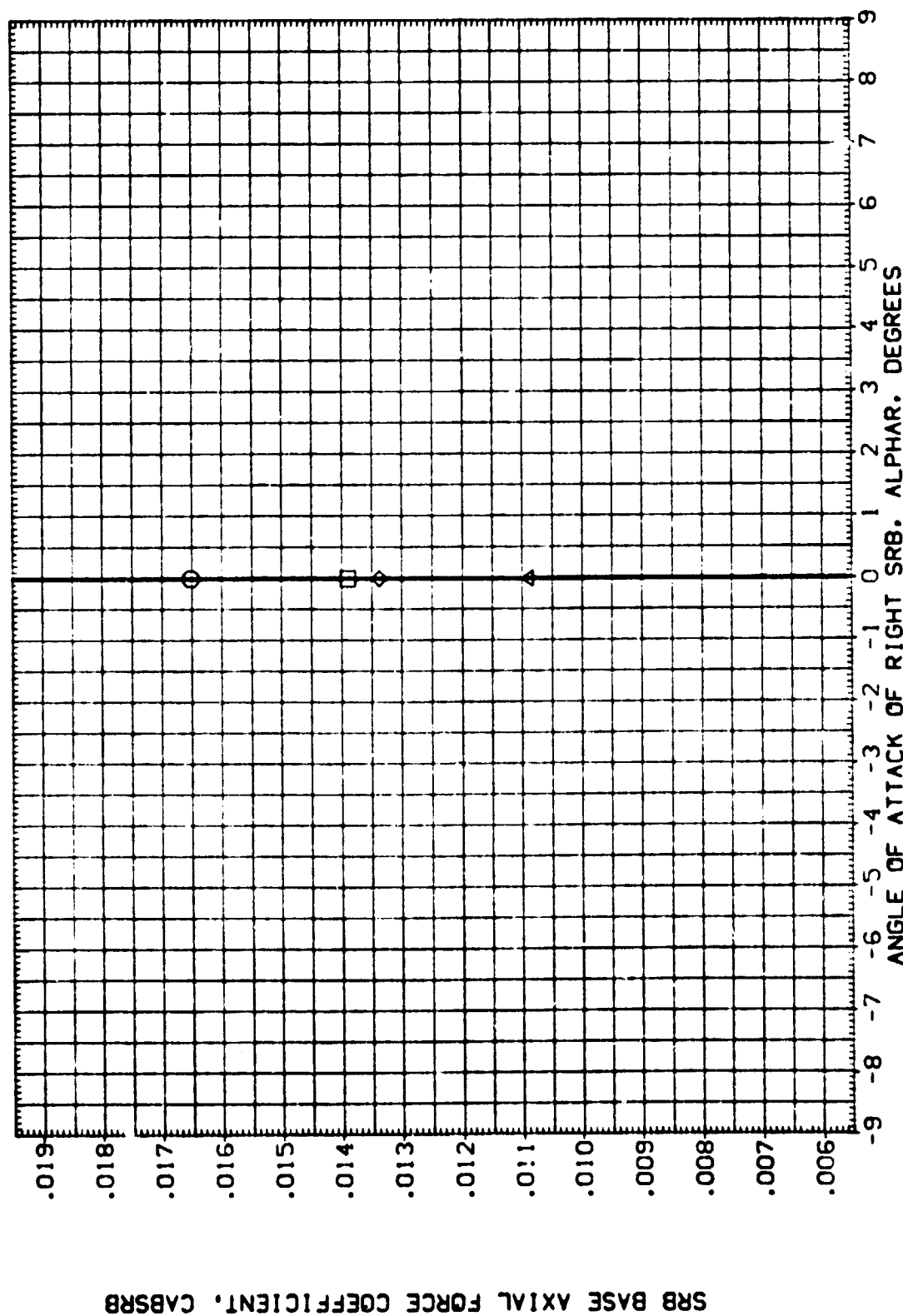


FIG. 37 RIGHT SRB BASE AXIAL FORCE COEFFICIENT

(E)BET R = 6.00

DATA SET SYMBOL CONFIGURATION DESCRIPTION ELV-19 ELV-08 BET-1 SPOBRK REFERENCE INFORMATION

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-19	ELV-08	BET-1	SPOBRK	REFERENCE INFORMATION
(UET123)	AMES97-019(1AB1) LVAP INT VEM ALL ML SEALED	8.000	-4.000	.000	.000	SPEF 2690.0000 SO.FT.
(UET143)	AMES97-019(1AB1) LVAP INT VEM ALL ML SEALED	8.000	.000	.000	.000	LREF 1297.0000 IN.
(UET145)	AMES97-019(1AB1) LVAP INT VEM ALL ML SEALED	10.000	-4.000	.000	.000	BREF 1297.0000 IN.
(UET129)	AMES97-019(1AB1) LVAP INT VEM ALL ML SEALED	.000	.000	.000	.000	YMRP 976.0000 IN. XT
						ZMRP .0000 IN. YT
						SCALE 400.0000 IN. ZT

FOREBODY AXIAL FORCE COEFFICIENT AT ZERO ALPHA, CAFAFO

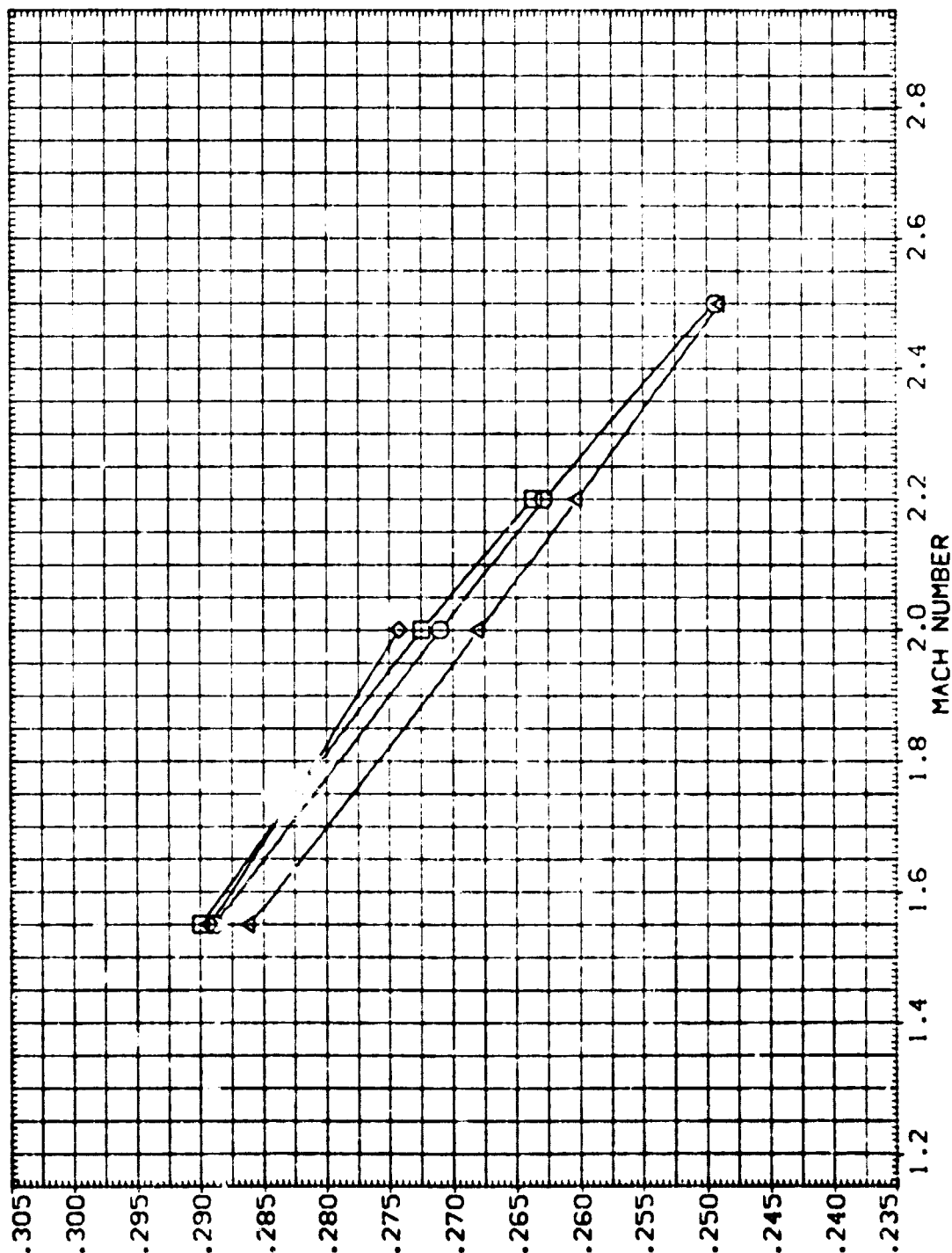


FIG. 38 SUMMARY, FOREBODY AXIAL FORCE COEFFICIENT AT ALPHA=0.0 DEG.

REPRODUCIBILITY OF THE ORIGIN

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-08	BETAI	SPOBRK	REFERENCE INFORMATION
(WET122)	AME597-019C(AB1) LVAP INT VEH ALL HL SEALED	8.000	-4.000	.000	.000	SREF 2690.0000 SO.FT.
(WET143)	AME597-019C(AB1) LVAP INT VEH ALL HL SEALED	8.000	.000	.000	.000	LREF 1297.0000 IN.
(WET146)	AME597-019C(AB1) LVAP INT VEH ALL HL SEALED	10.000	-4.000	.000	.000	BREF 1297.0000 IN.
(WET125)	AME597-019C(AB1) LVAP INT VEH ALL HL SEALED	.000	.000	.000	.000	YMRP 976.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

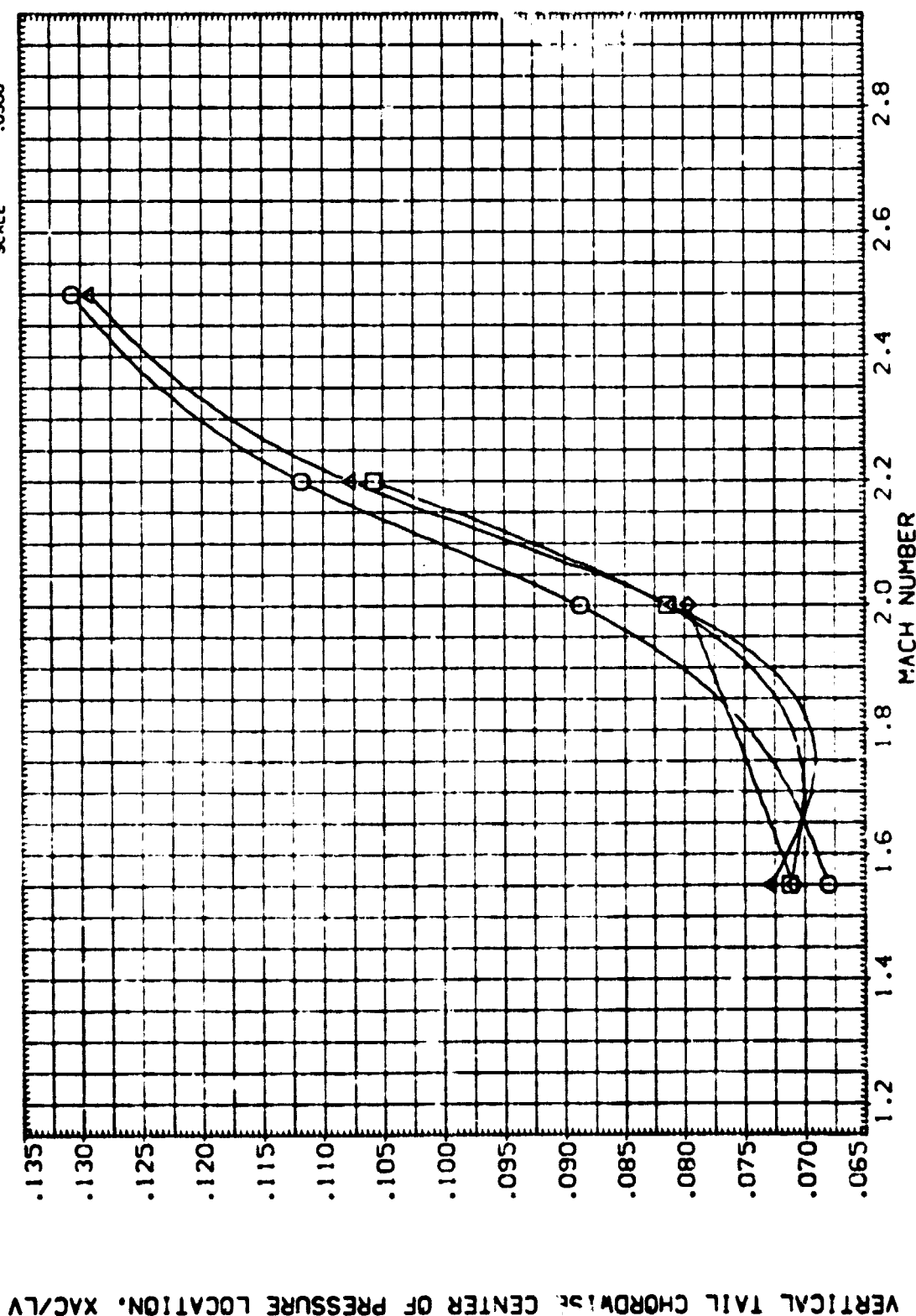


FIG. 39 SUMMARY. LONGITUDINAL AERODYNAMIC CENTER LOCATION

NORMAL FORCE COEFFICIENT GRADIENT, CNALFA

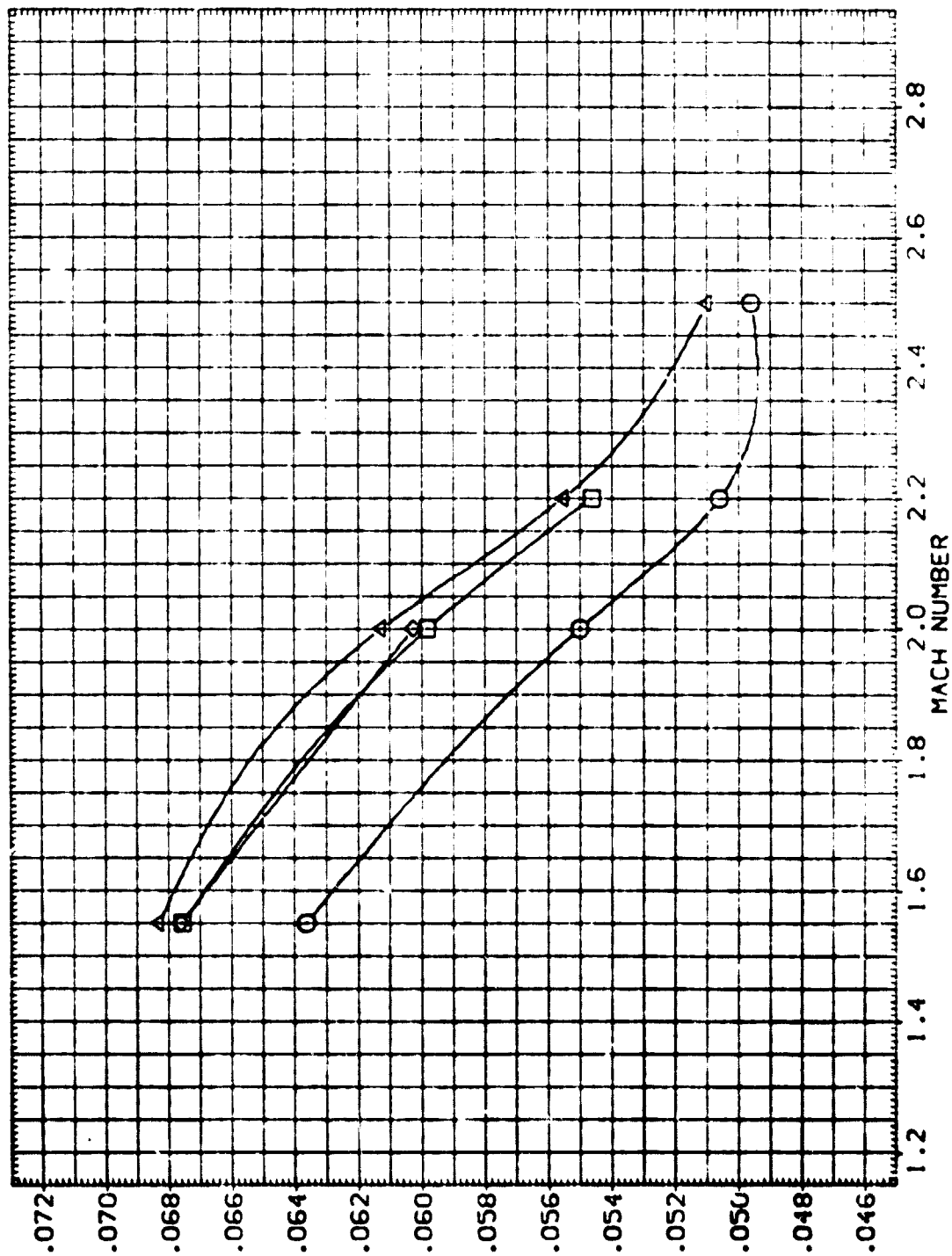


FIG. 40 SUMMARY, NORMAL FORCE COEFFICIENT SLOPE AT $\beta_{EA}=0.0$ DEG.

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-08	ALPHA1	SPOBRK	REFERENCE INFORMATION
(4ET135)	ANES57-019(IAB1) LVAP INT VEM ALL ML SEALED	8.000	-4.000	.000	.000	SREF 2690.0000 SO.FT.
(4ET143)	ANES57-019(IAB1) LVAP INT VEM ALL ML SEALED	8.000	.000	.000	.000	LREF 1297.0000 IN.
(4ET146)	ANES57-019(IAB1) LVAP INT VEM ALL ML SEALED	10.000	-4.000	.000	.000	BREF 1297.0000 IN.
(4ET139)	ANES57-019(IAB1) LVAP INT VEM ALL ML SEALED	.000	.000	.000	.000	XMRP 976.0000 IN. XT
						YMRP .0000 IN. YT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

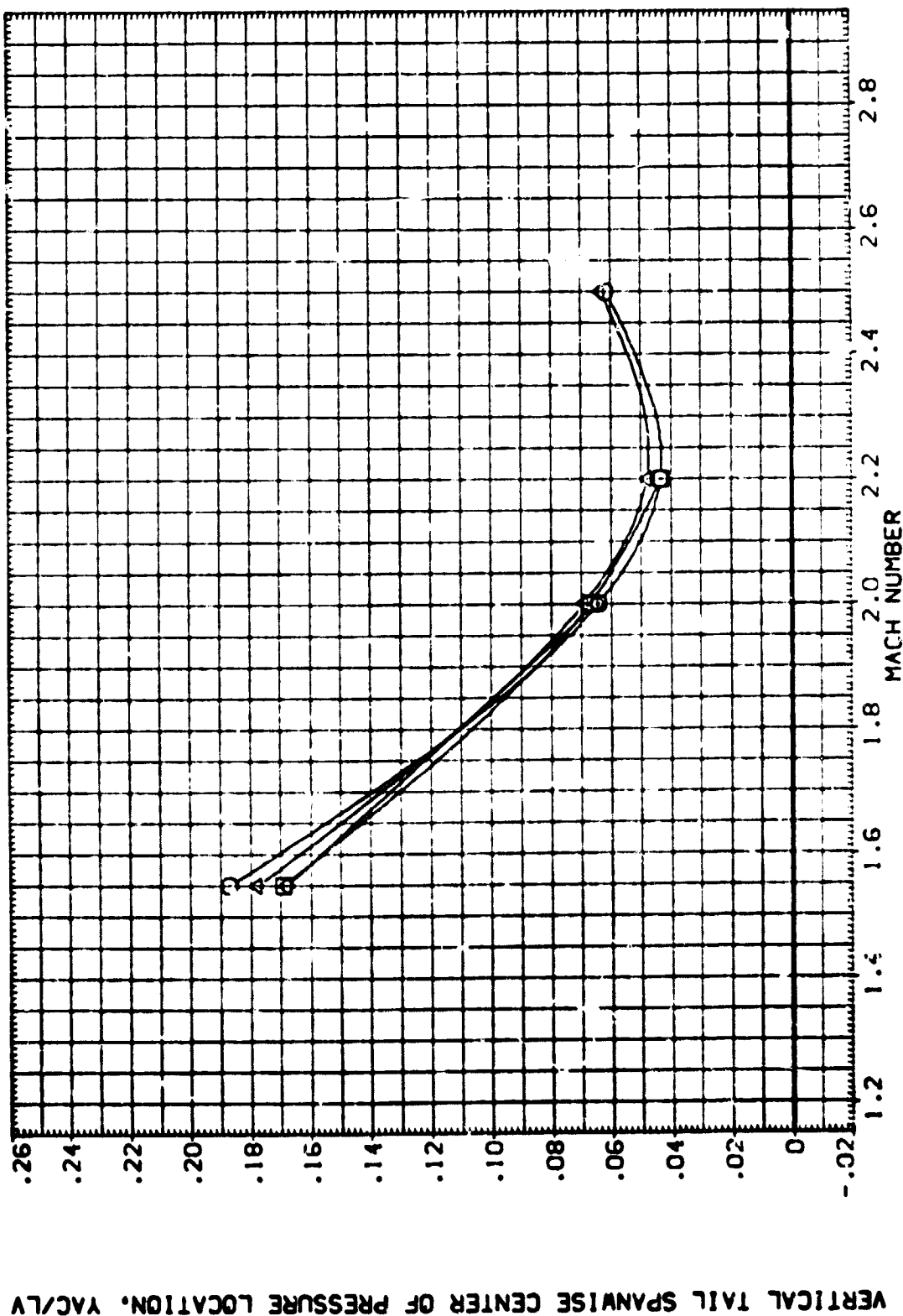


FIG. 41 SUMMARY. DIRECTIONAL AERODYNAMIC CENTER LOCATION

DATA SET SYMBOL CONFIGURATION DESCRIPTION

DATA SET	SYMBOL	CONFIGURATION	DESCRIPTION	ELV-1B	ELV-08	ALPHA	SPCBK	REFERENCE INFORMATION
(3E1135)	○	AMES97-019(1A81)	LVAP INT VEH ALL HL SEALED	8.000	-4.000	.000	.000	SREF 2690.0000 SQ.FT.
(3E1143)	×	AMES97-019(1A81)	LVAP INT VEH ALL HL SEALED	8.000	-4.000	.000	.000	LREF 1297.0000 IN.
(3E1145)	×	AMES97-019(1A81)	LVAP INT VEH ALL HL SEALED	10.000	-4.000	.000	.000	BREF 1297.0000 IN.
(3E1139)	×	AMES97-019(1A81)	LVAP INT VEH ALL HL SEALED	.000	.000	.000	.000	YMRP 976.0000 IN. YI
								ZMRP 400.0000 IN. ZI
								SCALE .0300

SIDE FORCE COEFFICIENT DERIVATIVE WITH BETA, CYBETA, PER DEGREE

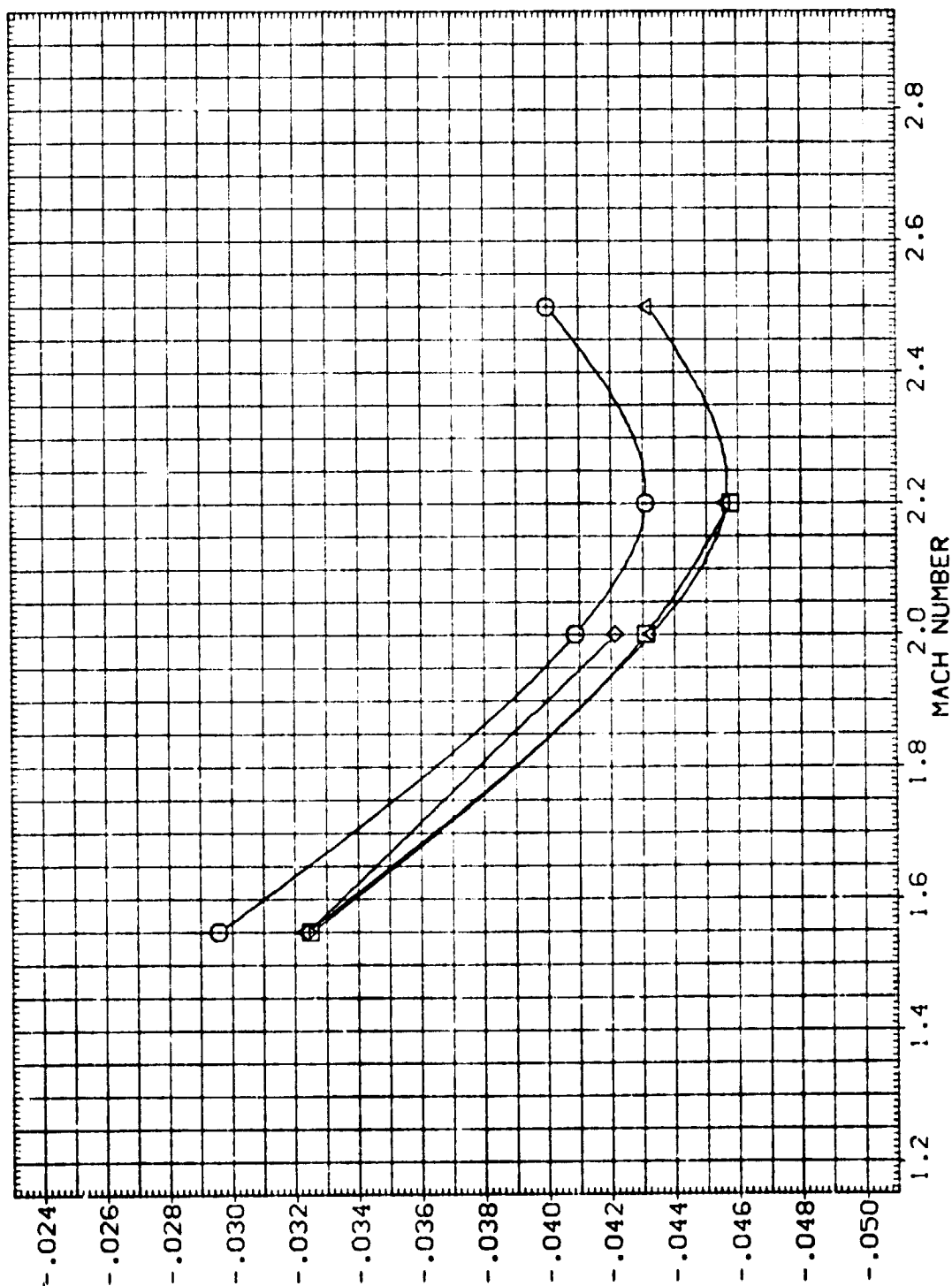


FIG. 42 SUMMARY, SIDE FORCE COEFFICIENT SLOPE AT ALPHA=0.0 DEG.

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	BETA1	SPOBRK	REFERENCE INFORMATION
(0ETH35)	AMES97-019(1A81) LVAP	8.000	-4.000	.000	.000	SREF 2690.0000 SQ.FT.
(0ETH42)	AMES97-019(1A81) LVAP	8.000	.000	.000	.000	LREF 1297.0000 IN.
(0ETH43)	AMES97-019(1A81) LVAP	10.000	-4.000	.000	.000	BREF 1297.0000 IN.
(0ETH45)	AMES97-019(1A81) LVAP	.000	.000	.000	.000	XMRP 976.0000 IN.
(0ETH39)	AMES97-019(1A81) LVAP	.000	.000	.000	.000	YMRP 400.0000 IN.
						ZMRP 400.0000 IN.
						SCALE .0300

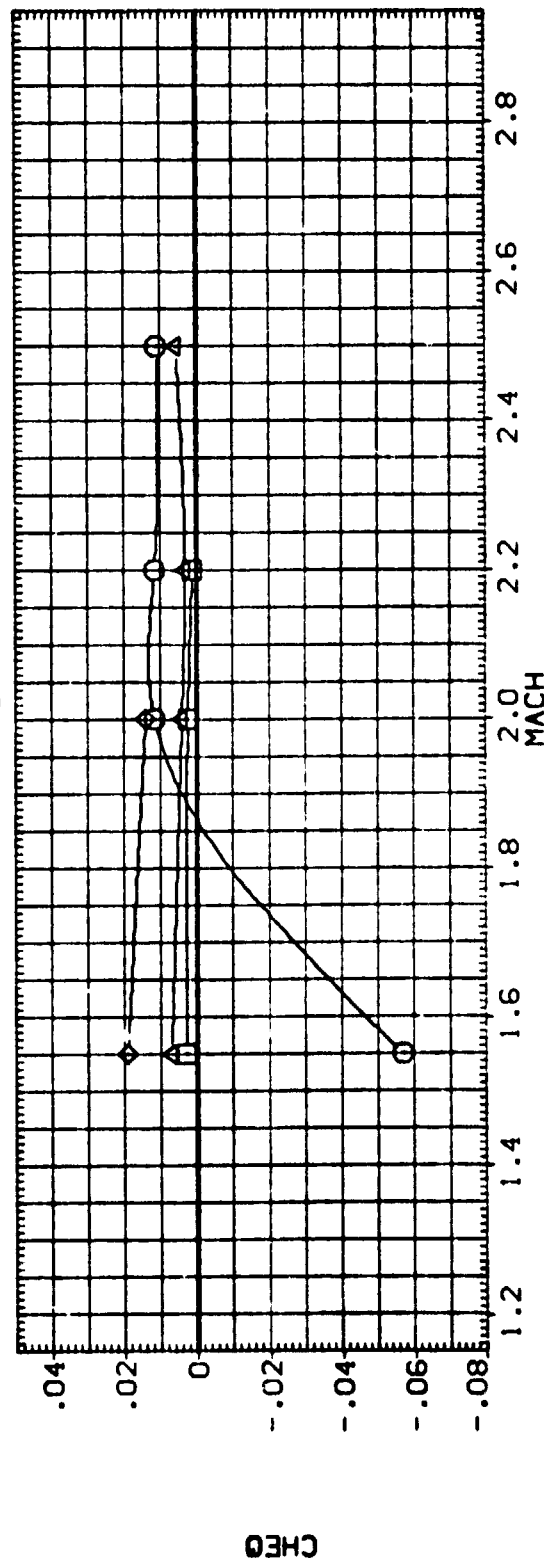
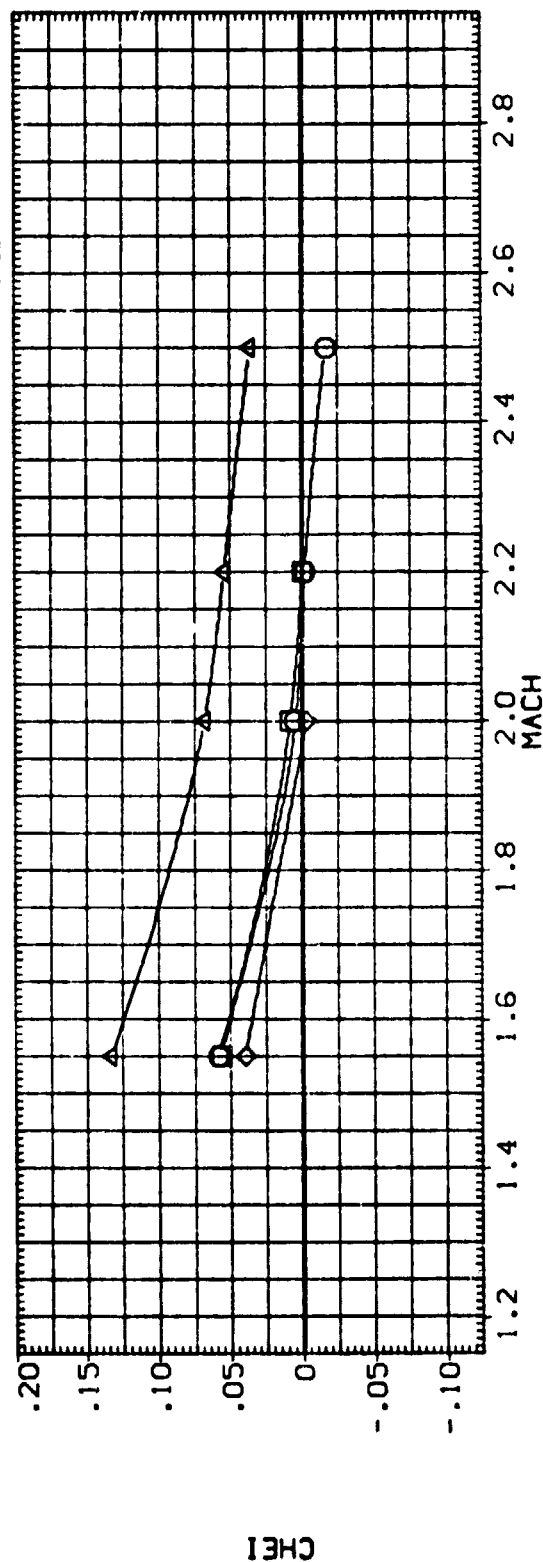


FIG. 43 SUMMARY, ELEVON HINGE MOMENT COEFFICIENTS

(A) ALPHA0 = -6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	BETAI	SPDBRK	REFERENCE INFORMATION			
(OETH39)	AMES97-019(IAB1) LVAP	8.000	-4.000	.000	.000	SREF	2690.0000	SQ.FT.	
(OETH43)	AMES97-019(IAB1) LVAP	8.000	.000	.000	.000	LREF	1297.0000	IN.	
(OETH45)	AMES97-019(IAB1) LVAP	10.000	-4.000	.000	.000	BREF	1297.0000	IN.	XT
(OETH39)	AMES97-019(IAB1) LVAP	.000	.000	.000	.000	XMRP	976.0000	IN.	YT
						YMRP	.0000	IN.	ZT
						ZMRP	400.0000	IN.	
						SCALE	.0300		

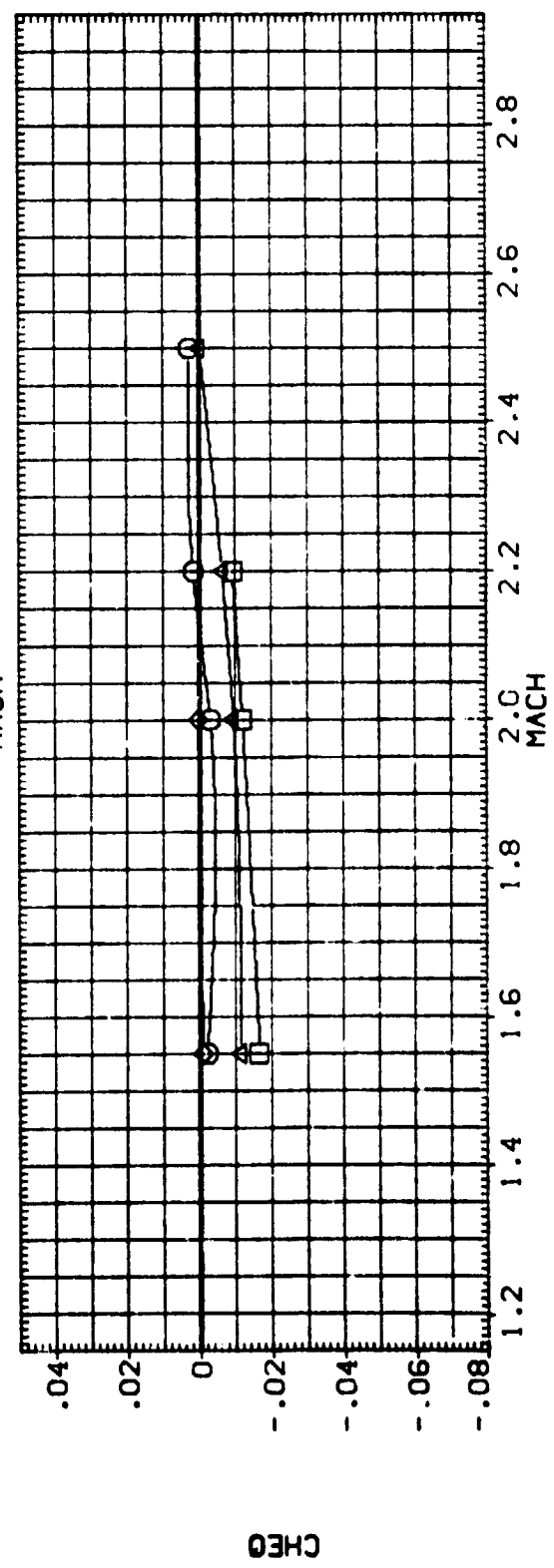
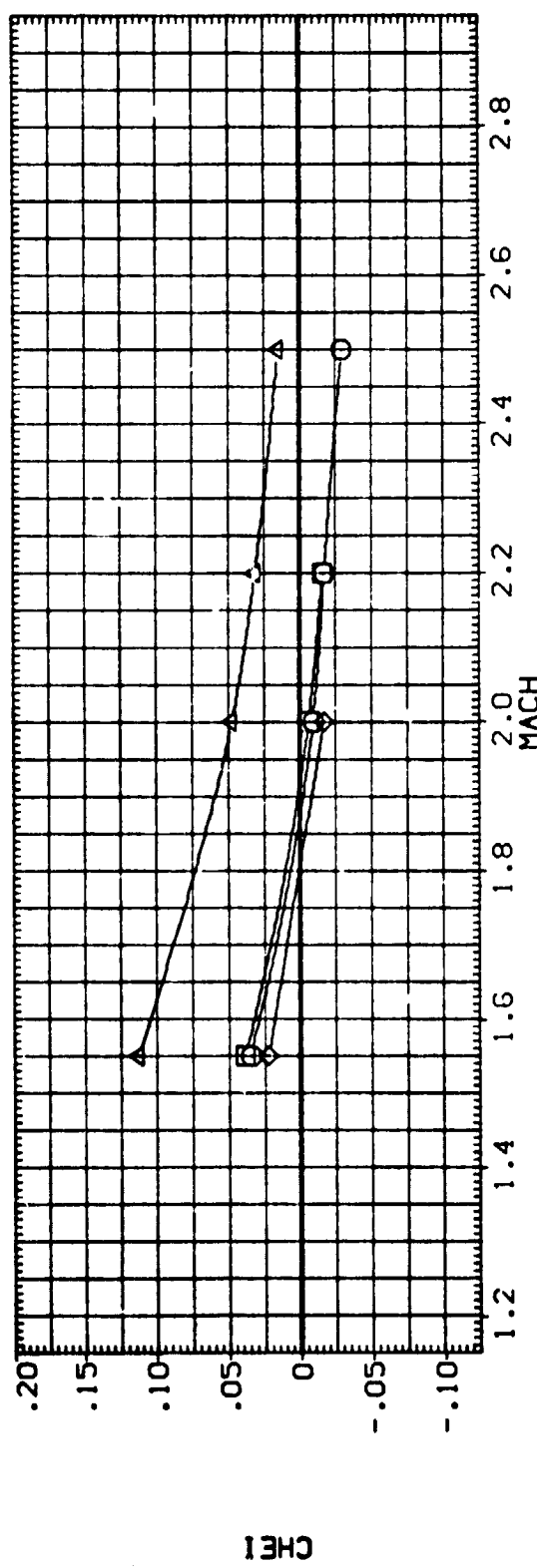


FIG. 43 SUMMARY, ELEVON HINGE MOMENT COEFFICIENTS

(C)ALP:AO= -2.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1R	ELV-06	BETAI	SPOBRK	REFERENCE INFORMATION
(DETH33)	AMES97-019(1A81) LVAP C93(1ER-ALL HL SEALED	8.000	-4.000	.000	.000	SREF 2690.0000 SQ.FT.
(DETH43)	AMES97-019(1A81) LVAP C98(1EP-ALL HL SEALED	8.000	.000	.000	.000	LREF 1297.0000 IN.
(DETH46)	AMES97-019(1A81) LVAP C98(1EP-ALL HL SEALED	10.000	-4.000	.000	.000	BREF 1297.0000 IN. AT
(DETH39)	AMES97-019(1A81) LVAP C98(1EP-ALL HL SEALED	.000	.000	.000	.000	XMRP 976.0000 IN. YT
						ZMRP 100.0000 IN. ZT
						SCALE .0300

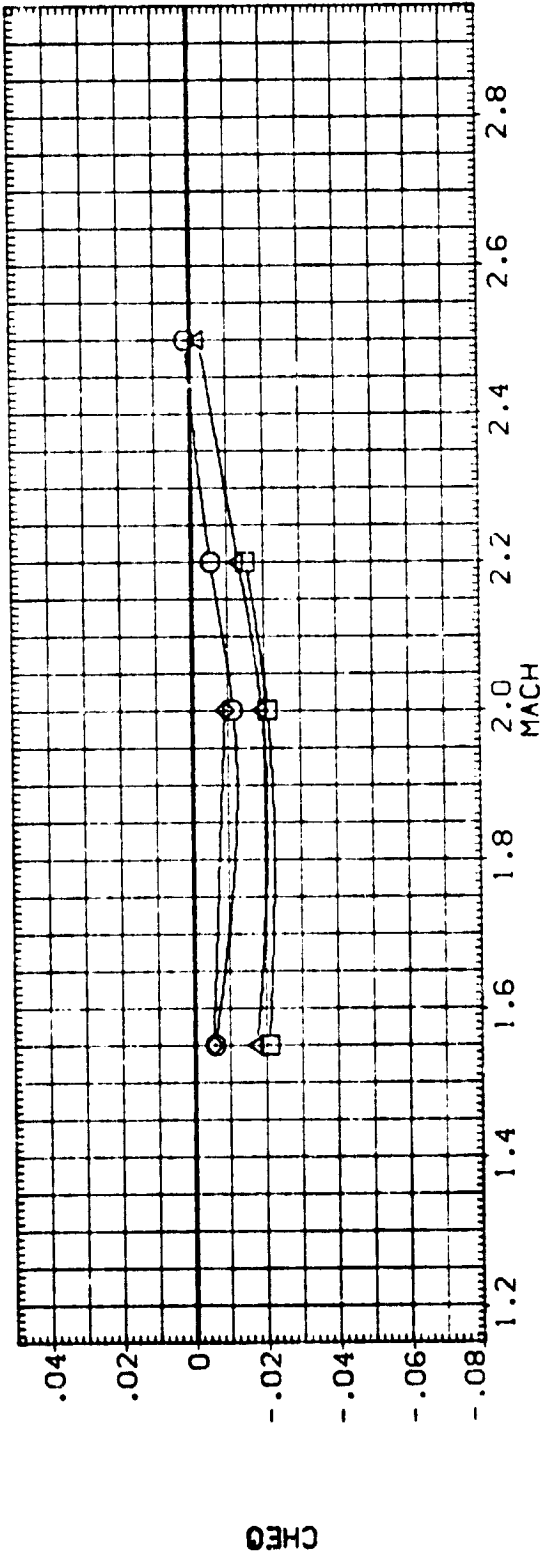
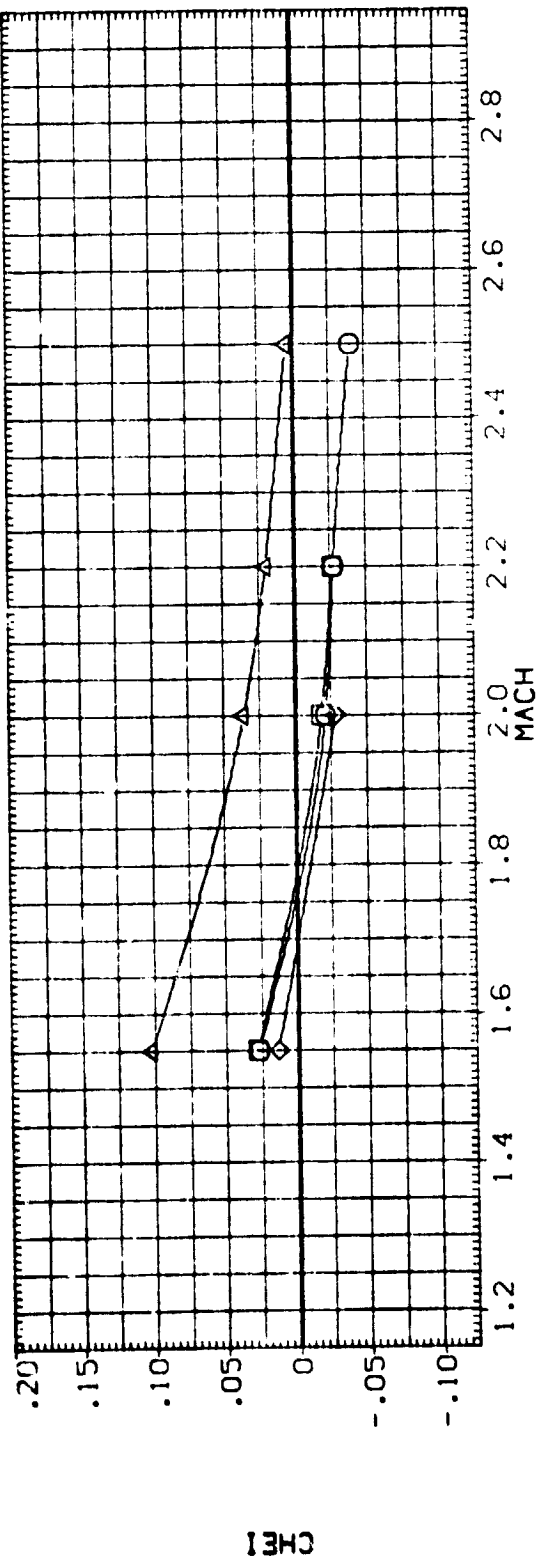


FIG. 43 SUMMARY, ELEVON HINGE MOMENT COEFFICIENTS

(D)ALPHA= .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-18	ELV-OB	BETA1	SPDBRK	REFERENCE INFORMATION
(DETH35)	AME597-019(1A81) LVAP	8.000	-4.000	.000	.000	SREF 2690.0000 SQ.FT.
(DETH43)	AME597-019(1A81) LVAP	8.000	-4.000	.000	.000	LREF 1297.0000 IN.
(DETH45)	AME597-019(1A81) LVAP	10.000	-4.000	.000	.000	BREF 1297.0000 IN.
(DETH39)	AME597-019(1A81) LVAP	.000	.000	.000	.000	XHRP 976.0000 IN. XT
						ZHRP 400.0000 IN. YT
						SCALE .0300

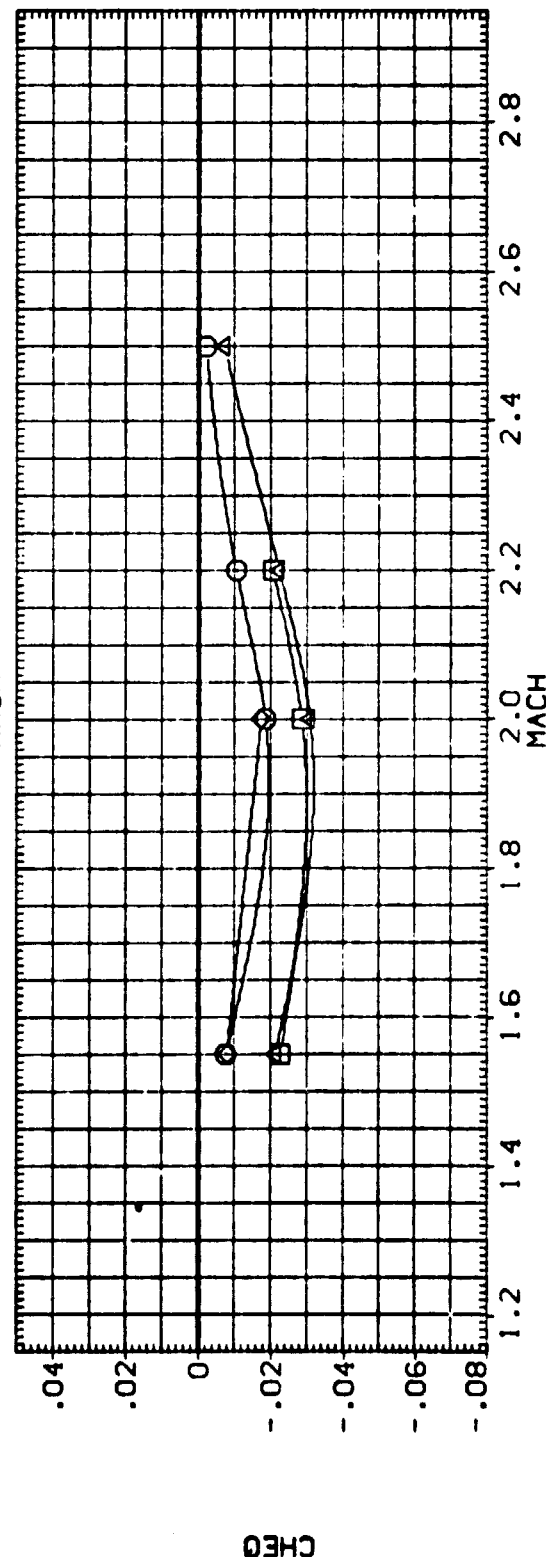
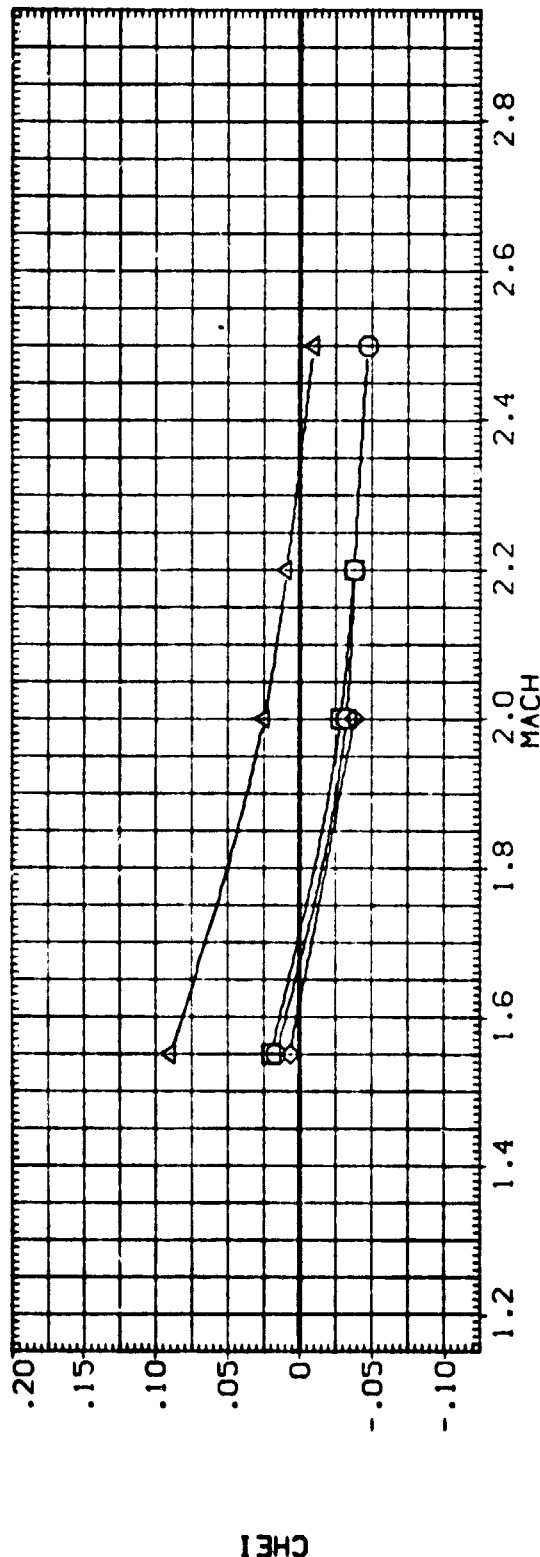


FIG. 43 SUMMARY, ELEVON HINGE MOMENT COEFFICIENTS

(E)ALPHA0= 2.00

DATA SET SYMBOL
(DETH35)
(DETH43)
(DETH45)
(DETH39)

CONFIGURATION DESCRIPTION

AMES97-019(1A81) LVAP
AMES97-019(1A81) LVAP
AMES97-019(1A81) LVAP
AMES97-019(1A81) LVAP

CRBITER-ALL HL
CRBITER-ALL HL
CRBITER-ALL HL
CRBITER-ALL HL

SPOBRK

BETA1

ELV-C9

ELV-I9

REFERENCE INFORMATION
SREF 2690.0000 SQ.FT.
LREF 1297.0000 IN.
BREF 1297.0000 IN.
XMRP 976.0000 IN. XT
YMRP .0000 IN. YT
ZMRP 400.0000 IN. ZT
SCALE .0300

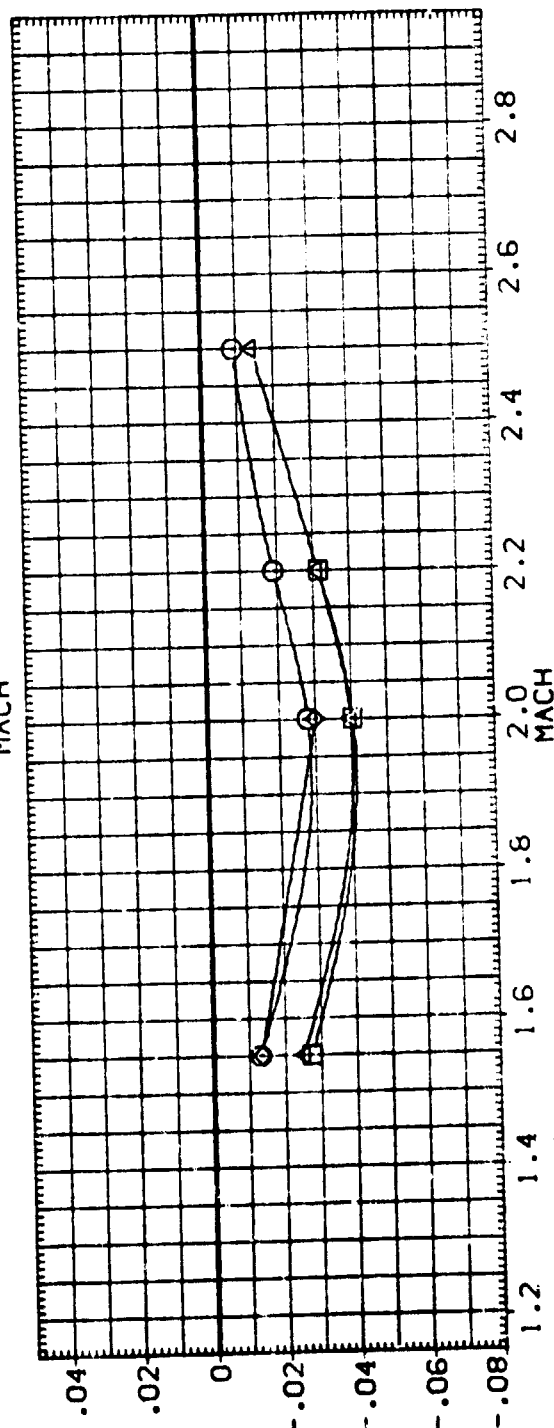
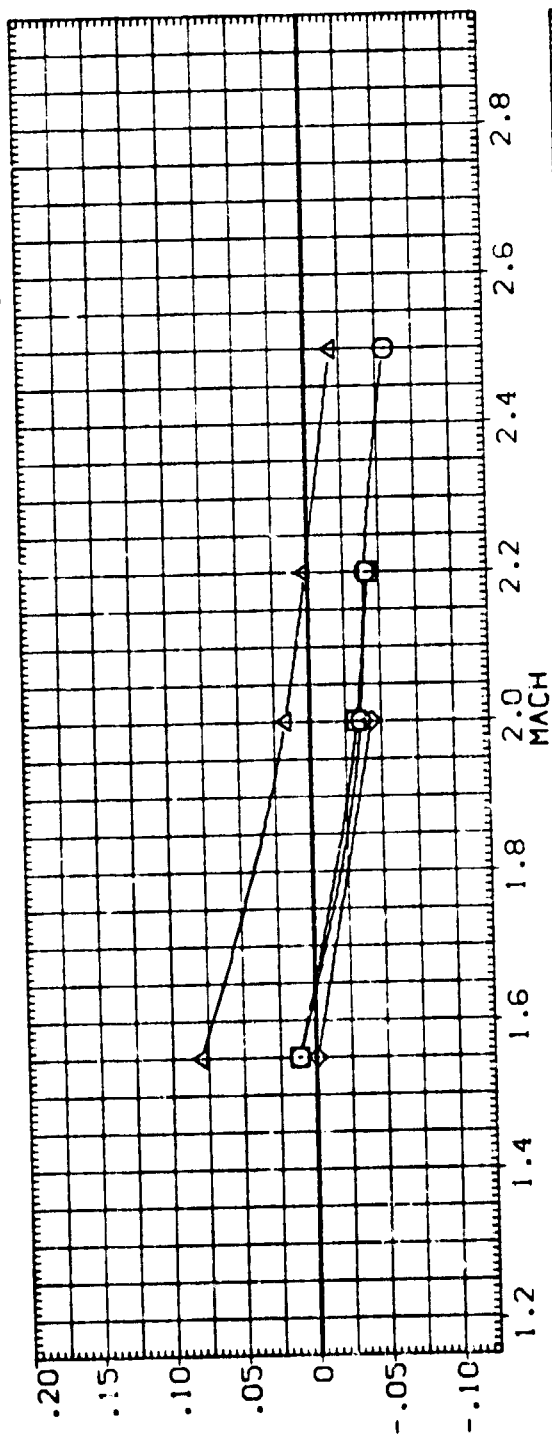


FIG. 43 SUMMARY, ELEVON HINGE MOMENT COEFFICIENTS

(F)ALPHA0= 4.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-0B	BETA1	SPDBRK	REFERENCE INFORMATION			
(DETH33)	AMES97-019(IAB1) LVAP ORBITTER-ALL HL SEALED	8.000	-4.000	.000	.000	SREF	2690.0000	SO.FT.	
(DETH43)	AMES97-019(IAB1) LVAP ORBITTER-ALL HL SEALED	8.000	.000	.000	.000	LREF	1297.0000	IN.	
(DETH46)	AMES97-019(IAB1) LVAP ORBITTER-ALL HL SEALED	10.000	-4.000	.000	.000	BREF	1297.0000	IN.	XT
(DETH39)	AMES97-019(IAB1) LVAP ORBITTER-ALL HL SEALED	.000	.000	.000	.000	XMRP	976.0000	IN.	YT
						YMRP	.0000	IN.	ZT
						ZMRP	400.0000	IN.	ZT
						SCALE	.0300		

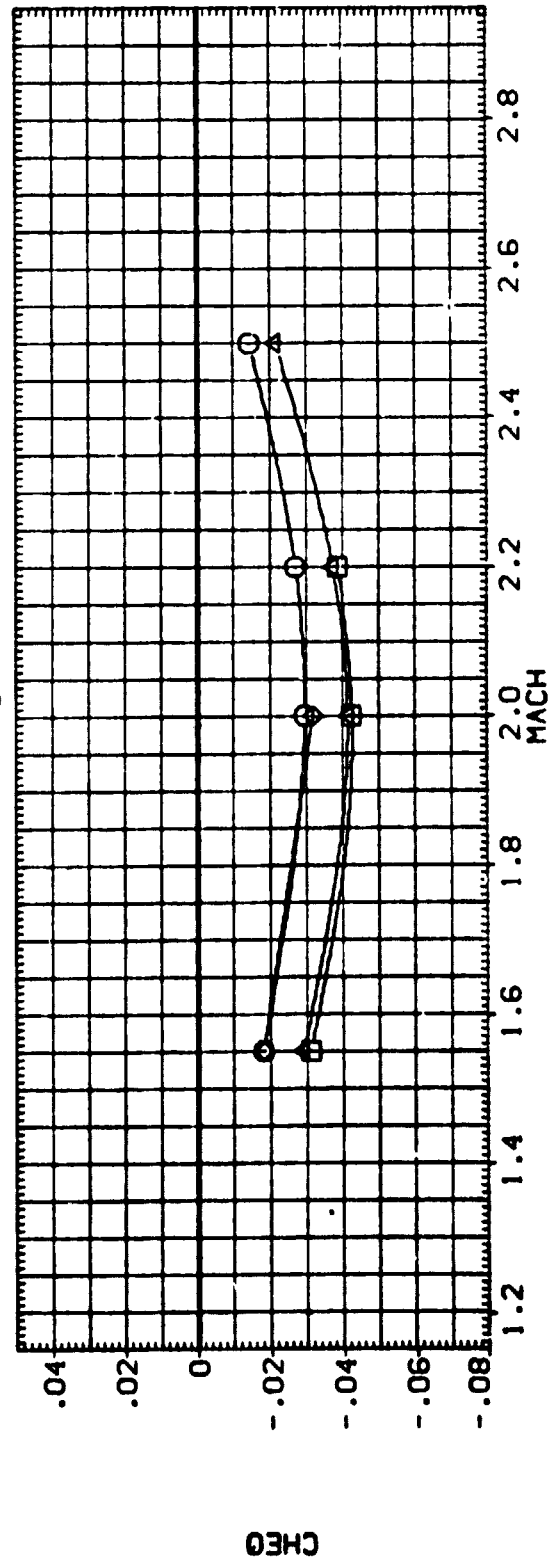
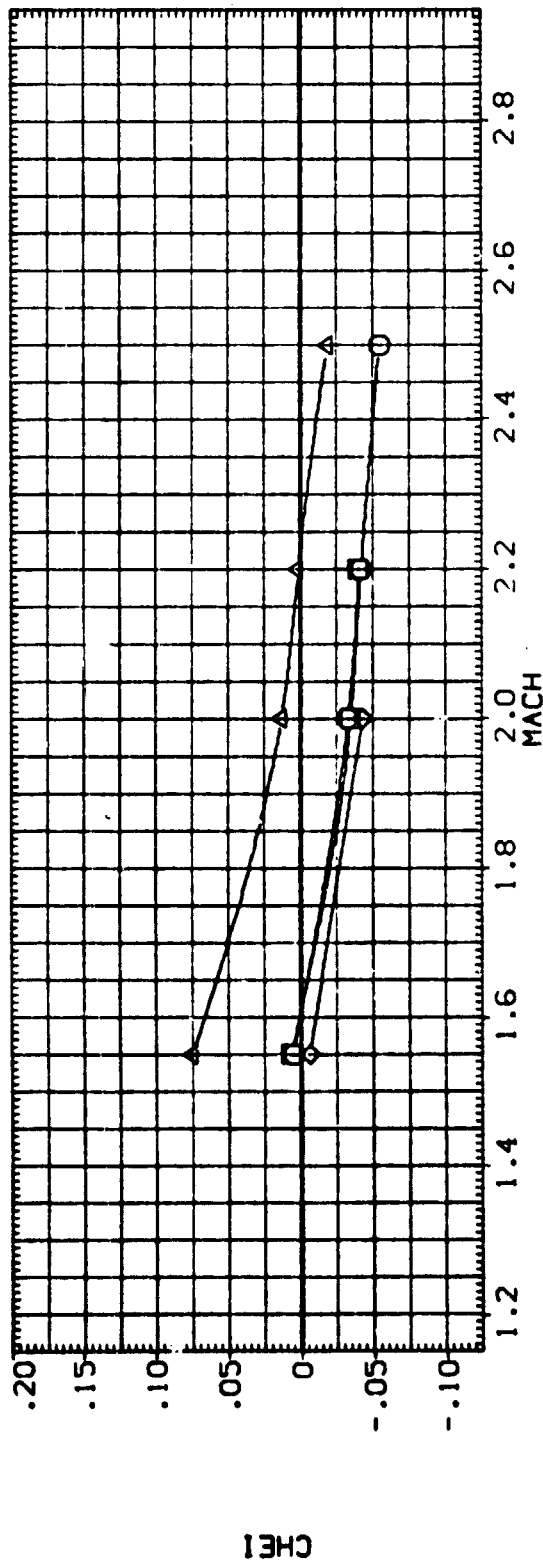


FIG. 43 SUMMARY, ELEVON HINGE MOMENT COEFFICIENTS

(G)ALPHA= 6.00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ELV-1B	ELV-OB	BETAI	SPOBRK	REFERENCE INFORMATION
(DET1135)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	9.000	-4.000	.000	.000	SREF 2690.0000 SQ.FT.
(DET1143)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	8.000	.000	.000	.000	LREF 1297.0000 IN.
(DET1146)	AMES97-019(IAB1) LVAP INT VEH ALL HL SEALED	10.000	-4.000	.000	.000	BREF 1297.0000 IN.
						XMRP 976.0000 IN. XT
						ZMRP 400.0000 IN. ZT
						SCALE .0300

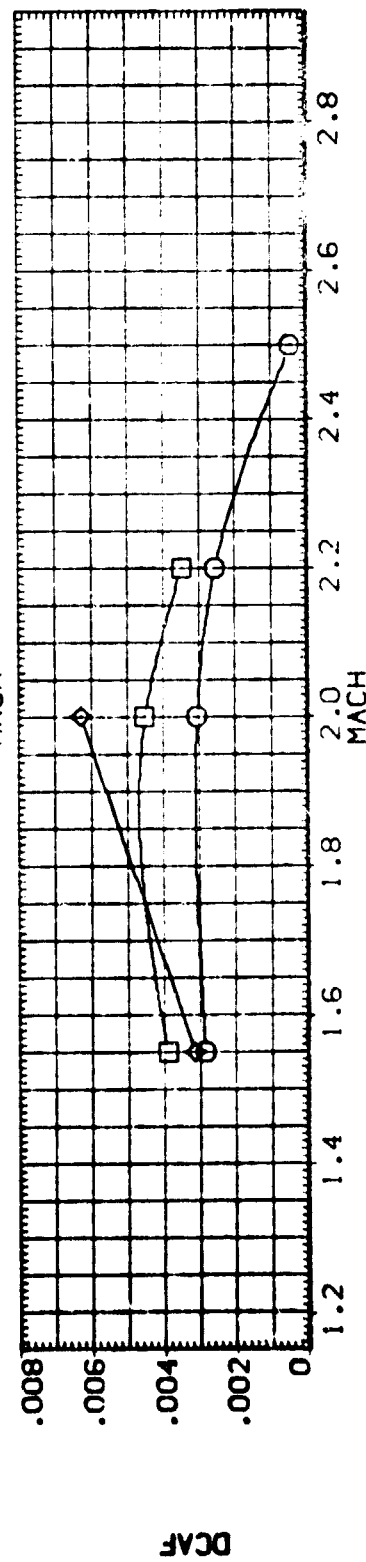
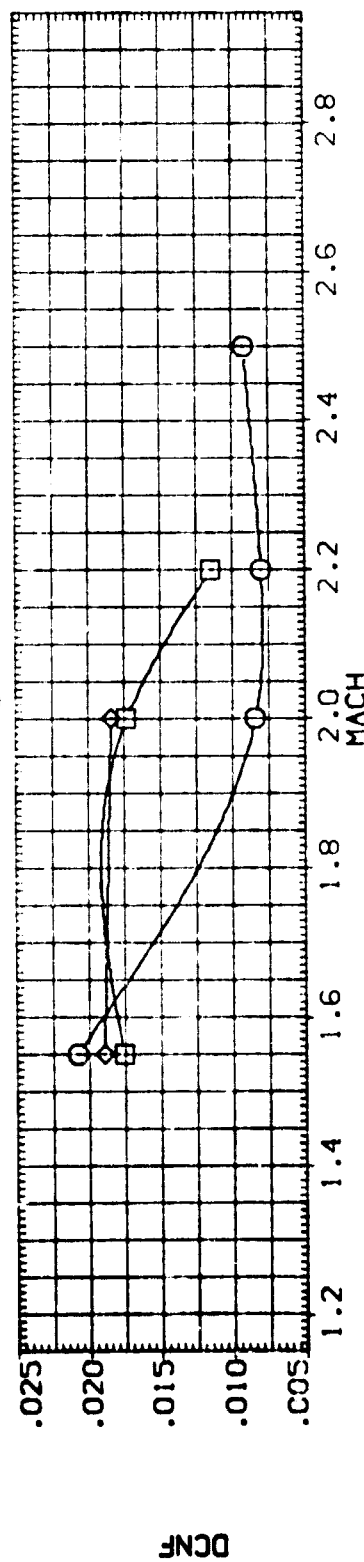
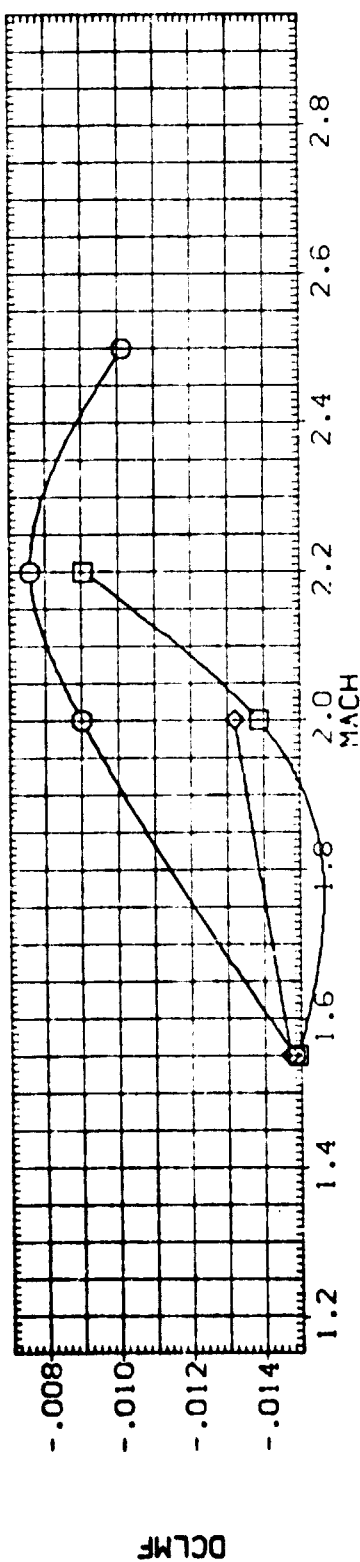


FIG. 44 SUMMARY, ELEVON EFFECTIVENESS, ALPHA=0.0, BETA=0.0
(A)ALPHA= .00

APPENDIX

TABULATED SOURCE DATA

VOLUME 1		(Force)
VOLUME 3	Pages 1-728	(Pressure)
VOLUME 4	Pages 729-1459	(Pressure)
VOLUME 5	Pages 1460-2163	(Pressure)

Tabulations of plotted data may be obtained
from Data Management Services upon request.

REFERENCE DATA									
SREF =	2690.0000	SQ.FT.	XMRP =	976.0000	IN. XT	ELV-IB =			
LREF =	1297.0000	IN.	YMRP =	.0000	IN. YT	RUDDER =			
BREF =	1297.0000	IN.	ZMRP =	400.0000	IN. ZT	MACH =			
SCALE =	.0300								
PARAMETRIC DATA									
RUN NO. 100/ 0 RN/L = 3.03 GRADIENT INTERVAL = -5.00/ 5.00									
BETA0	ALPHA0	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
.230	-6.381	-.12765	.13605	.12352	.15580	-.00510	.00330	-.00110	.01975
.215	-4.330	-.11787	.12645	.11112	.14590	-.00800	.00570	-.00180	.01945
.182	-.116	.00017	.10945	.03089	.12960	-.00660	.00470	-.00150	.02015
.186	4.056	.07694	.09945	-.02911	.11970	-.00510	.00400	-.00140	.02025
.209	8.267	.16136	.09304	-.09863	.11410	-.00600	.00350	-.00150	.02106
.218	10.355	.18852	.09075	-.11621	.11070	-.00750	.00370	-.00170	.01995
	GRADIENT	.02323	-.00322	-.01673	-.00313	.00023	-.00020	.00005	.00010

REFERENCE DATA									
SREF =	2690.0000	SQ.FT.	XMRP =	976.0000	IN. XT	ELV-18 =			
LREF =	1297.0000	IN.	YMRP =	.0000	IN. YT	RUDDER =			
BREF =	1297.0000	IN.	ZMRP =	400.0000	IN. ZT	MACH =			
SCALE =	.0300								
PARAMETRIC DATA									
RUN NO. 101/ 0 RN/L = 3.03 GRADIENT INTERVAL = -5.00/ 5.00									
BETA0	ALPHA0	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
-.117	-6.403	-.09646	.14014	.11283	.16150	.00920	-.00600	.00390	.02136
-.139	-4.308	-.05977	.13144	.08265	.15390	.00910	-.00590	.00400	.02246
-.174	-.147	.01320	.11764	.02252	.14070	.00990	-.00670	.00380	.02306
-.167	4.050	.10942	.10734	-.05352	.12900	.00810	-.00570	.00340	.02166
-.139	8.292	.21125	.10234	-.13420	.12570	.00930	-.00660	.00380	.02336
-.118	10.383	.23559	.10134	-.14962	.12350	.00200	-.00330	.00250	.02216
	GRADIENT	.02025	-.00288	-.01630	-.00298	-.00012	.00002	-.00007	-.00010

(RET031) (03 OCT 75)

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IAB18 - FORCE SOURCE DATA TABULATION

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AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED

(RET032) (03 OCT 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
 SCALE = .0300

RUN NO. 102/ 0 RN/L = 3.03 GRADIENT INTERVAL = -5.00/ 5.00

BETA0	ALPHA0	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
.079	-6.373	-1.11082	.14475	.12711	.16340	-.00030	.00040	.00090	.02065
.053	-4.277	-.07320	.13724	.09511	.15970	-.00010	.00020	.00110	.02246
.011	-.098	.01790	.12364	.01945	.14630	.00160	-.00100	.00150	.02266
.020	4.129	.14614	.11424	-.08022	.13630	.00220	-.00220	.00190	.02208
.053	8.392	.26857	.11254	-.17325	.13570	.00210	-.00250	.00220	.02316
.074	10.494	.29450	.11174	-.18907	.13493	-.00170	-.00170	.00160	.02315
	GRADIENT	.02610	-.00274	-.02086	-.00273	.00027	-.00029	.00010	-.00005

PARAMETRIC DATA

ELV-18 = .000 ELV-08 = .000
 RUDDER = .000 SPOBRK = .55000
 MACH = 2.000 RN/L = 3.000

REFERENCE DATA

SREF = 2390.0000 SQ.FT. XMRP = 976.0000 IN. XT
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
 SCALE = .0300

RUN NO. 103/ 0 RN/L = 3.01 GRADIENT INTERVAL = -5.00/ 5.00

BETA0	ALPHA0	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
.428	-6.390	-1.16005	.14583	.15989	.17190	-.00330	.00230	-.00110	.02607
.401	-4.271	-.09069	.14014	.11304	.16500	-.00730	.00500	-.00093	.02496
.348	-.036	.05584	.13274	-.00603	.15630	-.00170	.00080	.00080	.02356
.366	4.233	.22815	.12014	-.13158	.15030	.00090	-.00100	.00140	.02216
.403	8.510	.35177	.12393	-.21974	.14930	-.00050	-.00050	.00060	.02337
	GRADIENT	.03855	-.00141	-.02877	-.00173	.00095	-.00071	.00027	-.00032

PARAMETRIC DATA

ELV-18 = .000 ELV-08 = .000
 RUDDER = .000 SPOBRK = .55000
 MACH = 1.550 RN/L = 3.000

(RET033) (03 OCT 75)

DATE 21 OCT 75

1AB1B - FORCE SOURCE DATA TABULATION

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AMES97-01911A21) LVAP ORBITER-ALL ML SEALED (RET034) (03 OCT 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

ELV-1B = 8.000 ELV-08 = -4.000
 RUDDER = .000 SPOBRK = .000
 MACH = 1.550 RN/L = 2.500

RUN NO. 115/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

	ALPHA0	BETA0	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
BETA0	-6.292	-6.292	-1.3353	.12143	.12225	.14830	-.00400	.00290	.00010	.02687
ALPHA0	.403	.378	-.05392	.11653	.06746	.14750	-.00300	.00200	.00070	.02607
BETA0	-3.78	-2.124	.09734	.11353	.01209	.13630	-.00150	.00070	.00090	.02537
ALPHA0	.342	.027	.08700	.11084	-.04763	.17430	-.00160	.00040	.00070	.02406
BETA0	-3.46	2.059	.17295	.11024	-.11648	.15090	-.00060	.00010	.00120	.02256
ALPHA0	.356	3.707	.24974	.10894	-.16467	.13010	.00020	.00110	.00140	.02116
BETA0	-3.59	6.242	.31566	.10794	-.20992	.12950	.00140	.00190	.00140	.02156
ALPHA0	.359	GRADIENT	.03953	-.00093	-.02929	-.00156	.00036	-.00035	.00008	-.00063

AMES97-01911A81) LVAP ORBITER-ALL ML SEALED (RET035) (03 OCT 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

ELV-1B = 8.000 ELV-08 = -4.000
 RUDDER = .000 SPOBRK = .000
 MACH = 1.550 RN/L = 2.500

RUN NO. 112/ 0 RN/L = 2.54 GRADIENT INTERVAL = -5.00/ 5.00

	ALPHA0	BETA0	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
BETA0	-3.794	-3.794	-.09705	.12202	.09315	.15090	.08430	-.05560	.02990	.02888
ALPHA0	-6.333	-6.319	-.12297	.12343	.11435	.15160	.03930	-.02590	.01480	.02817
BETA0	-6.299	2.522	-.14443	.12054	.12691	.14530	-.05570	.03680	-.01690	.02476
ALPHA0	.362	GRADIENT	-.00716	-.00030	.00501	-.00097	-.02223	.01467	-.00743	-.00067

RUN NO. 116/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

	ALPHA0	BETA0	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
BETA0	-5.870	-5.870	-.01689	.12082	.03504	.15100	.10310	-.06260	.03810	.03018
ALPHA0	-4.215	-4.211	-.03114	.11013	.04385	.14580	.08100	-.05190	.02780	.02767
BETA0	-4.194	.385	-.00687	.11693	.06966	.14280	-.00500	.00330	.00020	.02587
ALPHA0	.4155	4.561	-.04635	.11664	.05301	.14110	-.00530	.05240	-.02660	.02446
BETA0	-4.139	6.623	-.04135	.11603	.04843	.14230	-.11230	.07440	-.04030	.02627
ALPHA0	.363	GRADIENT	-.00158	-.00018	.00110	-.00056	-.01983	.01244	-.00049	-.00038

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ORIGINAL PAGE IS POOR

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IAB:8 - FORCE SOURCE DATA TABULATION

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(RETO35) (03 OCT 75)

A4E597-019(IAB:1) LVAP ORBITER-ALL HL SEALED

REFERENCE DATA

SREF = 2699.0000 SO.FT. XMRP = 976.0000 IN. XT
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
 SCALE = .0300

RUN NO. 117/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0	BETA0	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
-2.110	-5.871	.05508	.11772	-.02086	.14000	.09290	-.05290	.03590	.03028
-2.109	-1.724	.02293	.11553	.00113	.14160	.03690	-.02350	.01370	.02597
-2.081	2.471	.01878	.11434	.00324	.13820	-.04540	.02950	-.01350	.02385
-2.052	6.607	.03950	.11323	-.01138	.14050	-.10890	.06920	-.03800	.02727
GRADIENT	GRADIENT	GRADIENT	GRADIENT	GRADIENT	GRADIENT	GRADIENT	GRADIENT	GRADIENT	GRADIENT

RUN NO. 118/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0	BETA0	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
.004	-5.872	.13685	.11562	-.08399	.14610	.08480	-.05000	.03470	.03048
.007	-3.835	.10799	.11433	-.07474	.14040	.05240	-.03700	.02350	.02607
.019	.354	.06638	.11274	-.05289	.13710	-.00130	.00030	.00080	.02436
.011	4.021	.11032	.11313	-.06561	.13820	-.06170	.03550	-.02240	.02507
.022	6.587	.11548	.11143	-.07238	.13950	-.09780	.05960	-.03520	.02807
GRADIENT	GRADIENT	GRADIENT	GRADIENT	GRADIENT	GRADIENT	GRADIENT	GRADIENT	GRADIENT	GRADIENT

RUN NO. 119/ 0 RN/L = 2.54 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0	BETA0	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
2.066	-5.883	.21755	.11322	-.11441	.14380	.07890	-.04580	.03410	.03358
2.063	-1.746	.18023	.11114	-.12096	.13520	.03110	-.01950	.01280	.02406
2.078	2.453	.18667	.11064	-.12341	.13320	-.03300	.01930	-.01120	.02256
2.104	6.587	.20205	.11053	-.13548	.13890	-.09300	.05410	-.03600	.02917
GRADIENT	GRADIENT	GRADIENT	GRADIENT	GRADIENT	GRADIENT	GRADIENT	GRADIENT	GRADIENT	GRADIENT

RUN NO. 120/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0	BETA0	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
4.193	-5.872	.28342	.11122	-.19109	.14220	.05730	-.03880	.03190	.03098
4.191	-3.831	.27086	.10993	-.18122	.13550	.04410	-.02470	.02070	.02567
4.197	.361	.25733	.10974	-.16993	.13140	.00020	-.00110	.00140	.03166
4.208	4.530	.26610	.10893	-.17924	.13440	-.04580	.02350	-.01990	.02337
4.216	6.589	.27384	.10792	-.18546	.13150	-.07710	.04450	-.03330	.02968
GRADIENT	GRADIENT	GRADIENT	GRADIENT	GRADIENT	GRADIENT	GRADIENT	GRADIENT	GRADIENT	GRADIENT

PARAMETRIC DATA

CLV-18 = 8.000 ELY-09 = -4.000
 RUDDER = .000 SPDRK = .000
 MACH = 1.550 RN/L = 2.500

CBL .03590
 CABT .03028
 .01370 .02597
 .01350 .02385
 .03800 .02727
 .00640 .00050

CBL .03470
 CABT .03048
 .02350 .02607
 .00080 .02436
 .02240 .02507
 .03520 .02807
 .00549 .00012

CBL .03410
 CABT .03358
 .01280 .02406
 .01120 .02256
 .03600 .02917
 .00571 .00036

CBL .03190
 CABT .03098
 .02070 .02567
 .00140 .03166
 .01990 .02337
 .03330 .02968
 .00485 .00008

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IAB1B - FORCE SOURCE DATA TABULATION

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AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED (RE1035) (03 OCT 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
 SCALE = .0300

RUN NO. 121/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA0	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
6.319	-3.811	.33300	.10734	-.22329	.13200	.03790	-.01900	.01830	.02466
6.315	-1.716	.32798	.10664	-.22066	.13090	.02410	-.01500	.01140	.02426
6.316	.374	.32428	.10924	-.21565	.13120	.00230	-.00250	.00160	.02196
6.321	2.475	.32966	.10684	-.22303	.13030	-.02440	.01310	-.00950	.02346
6.324	4.539	.32591	.10663	-.22033	.13440	-.03940	.01790	-.01780	.02777
	GRADIENT	-.00060	-.00006	.00017	.00020	-.00972	.00488	-.00446	.00026

ELV-IB = 8.000 ELV-OB = -4.000
 RUDDER = .000 SPOBRK = .000
 MACH = 1.550 RN/L = 2.500

PARAMETRIC DATA

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
 SCALE = .0300

RUN NO. 122/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA0	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
-6.354	-4.160	-.06575	.12553	.07400	.15050	.09190	-.05900	.03300	.02497
-6.341	-2.050	-.07771	.12634	.08382	.15030	.04650	-.02930	.01730	.02396
-6.322	.062	-.08981	.12474	.09323	.14930	-.00050	.00070	.00110	.02356
-6.302	2.174	-.09493	.12224	.08725	.14540	-.04600	.03010	-.01500	.02316
-6.286	4.251	-.07837	.12154	.08045	.14600	-.09510	.06240	-.03210	.02446
	GRADIENT	-.00155	-.00057	.00078	-.00066	-.02216	.01426	-.00772	-.00009

ELV-IB = 8.000 ELV-OB = -4.000
 RUDDER = .000 SPOBRK = .000
 MACH = 2.000 RN/L = 2.500

PARAMETRIC DATA

RUN NO. 123/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA0	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
-4.273	-6.277	-.00942	.11893	.02816	.14730	.13380	-.08750	.04690	.02837
-4.265	-4.183	-.02739	.11943	.04244	.14550	.09060	-.05880	.03220	.02607
-4.235	.039	-.05057	.11944	.06120	.14370	.00070	.00000	.00130	.02426
-4.200	4.234	-.03770	.11533	.04727	.14060	-.09420	.06230	-.03160	.02527
-4.192	6.302	-.03561	.11333	.04257	.13900	-.13900	.09170	-.04670	.02567
	GRADIENT	-.00123	-.00049	.00058	-.00058	-.02195	.01439	-.00758	-.00010

ELV-IB = 8.000 ELV-OB = -4.000
 RUDDER = .000 SPOBRK = .000
 MACH = 2.000 RN/L = 2.500

PARAMETRIC DATA

DATE 21 OCT 75

IAB1B - FORCE SOURCE DATA TABULATION

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AMES97-019(1A81) LVAP CFBITER-ALL HL SEALED

(RET035) (03 OCT 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

ELV-1B = 8.000 ELV-QS = -4.000
 RUDDER = .000 SPDRK = .000
 MACH = 2.000 FN-1 = 2.500

RUN NO. 124/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

	BETAO	CLMF	CA	CY	CYNF	CBL	CABT
ALPHA0	-2.186	-0.0924	.14070	.12870	-.08460	.04430	.02907
	-2.175	.01622	.14020	.04390	-.02820	.01590	.02637
	-2.146	.02017	.13490	-.04320	.02820	-.01380	.02476
	-2.124	.00277	.13340	-.13310	.06900	-.04370	.02557
GRADIENT	-.00141	.00094	-.00126	-.02065	.01337	-.00704	-.00038

RUN NO. 125/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

	BETAO	CLMF	CA	CY	CYNF	CBL	CABT
ALPHA0	-0.096	-.04879	.13510	.12340	-.08130	.04200	.02737
	-0.095	-.03534	.13650	.08500	-.05580	.02890	.02787
	-0.084	-.01540	.13030	.02000	-.00100	.00140	.02446
	-0.062	.02695	.13090	-.09330	.05530	-.02650	.02557
	-0.055	-.03623	.12650	-.12540	.09300	-.04030	.02527
GRADIENT	-.00161	.00100	-.00058	-.02004	.01323	-.00651	-.00028

RUN NO. 126/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

	BETAO	CLMF	CA	CY	CYNF	CBL	CABT
ALPHA0	-6.257	-.08419	.13020	.11380	-.07480	.03860	.02717
	-2.089	-.06491	.13080	.03790	-.02380	.01260	.02727
	2.124	-.05200	.12720	-.03710	.02370	-.01110	.02476
	6.266	-.07440	.12440	-.11970	.07890	-.03790	.02557
GRADIENT	-.00063	.00069	-.00085	-.01780	.01127	-.00563	-.00059

RUN NO. 127/ 0 RN/L = 2.54 GRADIENT INTERVAL = -5.00/ 5.00

	BETAO	CLMF	CA	CY	CYNF	CBL	CABT
ALPHA0	-6.249	-.12326	.12630	.10720	-.07010	.03650	.02637
	-4.195	-.12239	.12870	.07260	-.04680	.02410	.02597
	.015	-.11040	.12360	.00120	-.00110	.00120	.02455
	4.191	-.11548	.12420	-.06820	.04440	-.02110	.02537
	6.248	-.11930	.12180	-.10850	.07170	-.03460	.02517
GRADIENT	-.00134	.00083	-.00054	-.01679	.01088	-.00539	-.00037

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1A818 - FORCE SOURCE DATA TABULATION

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AMES97-019(1A81) LVAP ORBITER-ALL HL SEALED

(RETO36) (03 OCT 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

ELV-1B = 8.000 ELV-OB = -4.000
 RUDDER = .000 SPDRK = .000
 MACH = 2.000 RN/L = 2.500

RUN NO. 128/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0	BETA0	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
6.207	-4.161	.24348	.09943	-.16869	.12610	.06970	-.04580	.02460	.02667
6.210	-2.065	.23645	.09873	-.16409	.12590	.03460	-.02240	.01170	.02717
6.220	.028	.23785	.09814	-.16378	.12300	.00530	-.00520	.00310	.02486
6.219	2.132	.23497	.09903	-.16203	.12440	-.02270	.01210	-.00600	.02537
6.217	4.196	.23403	.09623	-.16218	.12270	-.06220	.03970	-.01970	.02647
	GRADIENT	-.00097	-.00029	.00072	-.00040	-.01535	.00983	-.00508	-.00011

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

ELV-1B = 8.000 ELV-OB = -4.000
 RUDDER = .000 SPDRK = .000
 MACH = 2.200 RN/L = 2.500

RUN NO. 129/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0	BETA0	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
-6.357	-4.340	-.05475	.12103	.06471	.14810	.10030	-.06530	.03490	.02707
-6.346	-2.232	-.06037	.12034	.06869	.14490	.05450	-.03570	.01940	.02456
-6.330	-.129	-.06803	.12024	.07568	.14320	.00940	-.00620	.00410	.02296
-6.316	1.982	-.06454	.11804	.07118	.14030	-.03850	.02560	-.01210	.02226
-6.303	4.052	-.06298	.11784	.06790	.14090	-.08720	.05720	-.02840	.02306
	GRADIENT	-.00098	-.00041	.00042	-.00091	-.02229	.01459	-.00753	-.00049

RUN NO. 130/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0	BETA0	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
-4.273	-6.424	-.00642	.11483	.02586	.14350	.14010	-.09030	.04770	.02867
-4.268	-4.562	-.02365	.11623	.03974	.14280	.09890	-.06470	.03440	.02657
-4.242	-.145	-.03508	.11414	.04875	.13740	.00910	-.00610	.00390	.02326
-4.216	4.041	-.02889	.11234	.04088	.13480	-.09660	.03720	-.02840	.02446
-4.212	6.106	-.03058	.11274	.03262	.13760	-.13460	.06980	-.04390	.02486
	GRADIENT	-.00063	-.00046	.00014	-.00095	-.02207	.01451	-.00747	-.00049

ORIGINAL PAGE IS POOR

DATE 21 OCT 75

IAB18 - FORCE SOURCE DATA TABULATION

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AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED

(RETO37) (03 OCT 75)

REFERENCE DATA

SREF = 2590.0000 SQ.FT.
 LREF = 1297.0000 IN.
 BREF = 1297.0000 IN.
 SCALE = .0300

XMRP = 976.0000 IN. XT
 YMRP = .0300 IN. YT
 ZMRP = 400.0000 IN. ZT

PARAMETRIC DATA

ELV-18 = 8.000 ELV-09 = -4.000
 RUDDER = .000 SPDBRK = .000
 WACH = 2.200 RN/L = 2.500

RUN NO. 131/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETAO	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
-2.199	-6.426	.03304	.10993	-.00566	.13730	.13280	-.08630	.04490	.02737
-2.186	-2.253	.00816	.10863	.01317	.13430	.05100	-.03410	.01790	.02567
-2.171	1.947	.00129	.10594	.01772	.12940	-.03580	.02390	-.01130	.02346
-2.158	6.083	.00804	.10633	.00857	.13170	-.12600	.09220	-.04080	.02537
	GRADIENT	-.00164	-.00064	.00109	-.00117	-.02067	.01381	-.00695	-.00053

RUN NO. 132/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETAO	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
-1.138	-6.431	.07074	.10443	-.03589	.13190	.13010	-.08470	.04300	.02747
-1.135	-4.375	.05430	.10443	-.02369	.13130	.09390	-.06240	.03160	.02587
-1.128	-.174	.03639	.10344	-.00850	.12690	.00940	-.00840	.00380	.02436
-1.113	4.000	.04191	.10324	-.01538	.12470	-.07770	.06190	-.02490	.02376
-1.090	6.061	.04995	.10363	-.02436	.12680	-.12010	.07390	-.03910	.02517
	GRADIENT	-.00143	-.00042	.00094	-.00079	-.02049	.01355	-.00573	-.00037

RUN NO. 133/ 0 RN/L = 2.51 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETAO	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
1.916	-6.431	.10894	.09953	-.06572	.12610	.12440	-.08130	.04050	.02757
1.916	-2.268	.08071	.09913	-.04519	.12560	.04950	-.03320	.01640	.02647
1.931	1.934	.08064	.09714	-.04468	.12080	-.03210	.02120	-.00960	.02366
1.943	6.065	.09366	.09603	-.05616	.12220	-.11670	.07680	-.03630	.02617
	GRADIENT	-.00002	-.00047	.00012	-.00114	-.01942	.01295	-.00619	-.00057

RUN NO. 134/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETAO	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
4.018	-6.417	.15736	.09503	-.10253	.12070	.11910	-.01830	.03970	.02567
4.022	-4.361	.15328	.09673	-.10046	.12320	.09530	-.05730	.02770	.02647
4.025	-.168	.13237	.09444	-.08395	.11790	.00940	-.00570	.00370	.02346
4.034	3.991	.13822	.09343	-.09131	.11840	-.06890	.04500	-.02120	.02497
4.038	6.064	.14269	.09263	-.09506	.11970	-.10390	.07210	-.03410	.02607
	GRADIENT	-.00181	-.00033	.00110	-.00058	-.01845	.01237	-.00595	-.00018

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[A81B - FORCE SOURCE DATA TABULATION

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AMES97-019(1A81) LVAP ORBITER-ALL HL SEALED (RETO37) (03 OCT 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT ELV-1B = 8.000 ELV-OB = -4.000
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT RUDDER = .000 SPOBRK = .000
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT MACH = 2.200 RN/L = 2.500
 SCALE = .0300

PARAMETRIC DATA

RUN NO. 135/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAO	BETA0	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
6.134	-4.334	.20563	.09453	-.14066	.12080	.07930	-.05300	.02610	.02627
6.130	-2.240	.19083	.09283	-.13056	.11950	.04310	-.02890	.01400	.02667
6.130	-.154	.19004	.09164	-.12895	.11560	.00870	-.00660	.00360	.02396
6.134	1.951	.19180	.09194	-.13131	.11660	-.02420	.01480	-.00680	.02466
6.135	3.996	.19329	.09123	-.13343	.11680	-.06350	.04190	-.01960	.02557
GRADIENT		-.00114	-.00036	.00066	-.00052	-.01692	.01120	-.00538	-.00016

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT ELV-1B = 8.000 ELV-OB = -4.000
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT RUDDER = .000 SPOBRK = .000
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT MACH = 2.500 RN/L = 2.500
 SCALE = .0300

PARAMETRIC DATA

RUN NO. 136/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAO	BETA0	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
-6.289	-3.981	-.04638	.11984	.05813	.14340	.08030	-.05170	.02670	.02356
-6.280	-1.881	-.05172	.11914	.06232	.14030	.03450	-.02180	.01180	.02116
-6.268	.215	-.05155	.11925	.06147	.13880	-.00740	.00520	-.00160	.01955
-6.259	2.322	-.05277	.11865	.05120	.13740	-.05260	.03400	-.01620	.01975
-6.250	4.369	-.05070	.11915	.05787	.13890	-.09860	.06310	-.03110	.01975
GRADIENT		-.00047	-.00009	-.00008	-.00057	-.02128	.01365	-.00687	-.00048

RUN NO. 137/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAO	BETA0	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
-4.232	-6.049	-.00846	.11294	.02761	.13730	.11930	-.07560	.03920	.02436
-4.224	-3.999	-.02086	.11264	.03741	.13660	.07620	-.04900	.02560	.02396
-4.198	.210	-.02708	.11105	.04147	.13070	-.00580	.00410	-.00120	.01965
-4.182	4.367	-.02474	.11145	.03732	.13230	-.09430	.06020	-.02990	.02085
-4.175	6.419	-.02583	.11204	.03609	.13370	-.13750	.08730	-.04400	.02165
GRADIENT		-.00047	-.00014	-.00001	-.00052	-.02038	.01305	-.00663	-.00037

(RETO38) (03 OCT 75)

AMES97-019(1A81) LVAP ORBITER-ALL HL SEALED

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

ELV-1B = 8.000 ELV-08 = -4.000
 RUDDER = .000 SPCBRK = .000
 MACH = 2.500 RN/L = 2.500

RUN NO. 138/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAO	BETAO	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
-2.171	-6.052	.01976	.10614	.00451	.13040	.11240	-.07230	.03690	.02426
-2.155	-1.900	.00632	.10514	.01526	.12710	.03120	-.01970	.01070	.02196
-2.141	2.289	.00324	.10425	.01622	.12480	-.04780	.07060	-.01480	.02055
-2.131	6.395	.00781	.10394	.00903	.12620	.113010	.09250	-.04160	.02226
	GRADIENT	-.00071	-.00021	.00023	-.00055	-.01895	.01201	-.00609	-.00034

RUN NO. 139/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAO	BETAO	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
-1.07	-6.062	.01694	.10034	-.01712	.12480	.11020	-.07110	.03560	.02446
-1.104	-4.014	.03335	.10024	-.00669	.12380	.07020	-.04510	.02330	.02356
-.095	.177	.00320	.09674	.00093	.11190	-.04330	.00420	-.00140	.02116
-.081	4.323	.03470	.09734	-.01024	.11920	-.03570	.05470	-.02670	.02166
-.076	6.393	.04346	.09634	-.01674	.11950	-.12530	.07940	-.03920	.02256
	GRADIENT	.00010	-.00035	-.00042	-.00059	-.01873	.01197	-.00600	-.00023

RUN NO. 140/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAO	BETAO	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
1.937	-6.052	.07679	.09454	-.04032	.11890	.12570	-.06820	.03350	.02426
1.942	-1.905	.05782	.09404	-.02554	.11600	.02860	-.01910	.00990	.02196
1.953	2.279	.05184	.09385	-.02938	.11320	-.04270	.02890	-.01280	.02055
1.968	6.390	.07371	.09154	-.04216	.11440	-.12030	.07640	-.03710	.02286
	GRADIENT	.00095	-.00033	-.00106	-.00057	-.01704	.01073	-.00542	-.00034

RUN NO. 141/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAO	BETAO	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
3.403	-6.044	.11832	.09104	-.07259	.11470	.10100	-.06520	.03210	.02305
3.401	-4.060	.10395	.09114	-.06166	.11420	.06310	-.04060	.02070	.02305
3.409	.190	.09750	.08507	-.05554	.10990	-.00600	.00390	-.00140	.02166
3.415	3.721	.10955	.08584	-.06224	.10770	-.07730	.04320	-.02390	.02186
3.418	6.394	.11803	.08744	-.07476	.11020	-.11330	.07190	-.03520	.02276
	GRADIENT	.00055	-.00068	-.00078	-.00084	-.01783	.01151	-.00571	-.00016

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(RETO39) (03 OCT 75)

AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
 SCALE = .0300

RUN NO. 142/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAO	BETA0	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
6.122	-4.040	.14257	.08784	-.09279	.11170	.05890	-.03780	.01980	.02386
6.126	-1.890	.14046	.08644	-.09106	.10910	.02580	-.01670	.00920	.02266
6.130	.192	.14432	.08574	-.09424	.10770	-.00550	.00320	-.00130	.02136
6.133	2.291	.14752	.08534	-.09734	.10690	-.03800	.02390	-.01200	.02156
6.136	3.707	.15257	.08254	-.10254	.10430	-.07080	.04460	-.02260	.02176
GRADIENT	.00134	.00058	-.00058	-.00127	-.00086	-.01634	.01039	-.00536	-.00028

ELV-1B = 8.000 ELV-0B = -4.000
 RUDDER = .000 SPDBRK = .000
 MACH = 2.500 RN/L = 2.500

PARAMETRIC DATA

AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED

(RETO39) (03 OCT 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
 SCALE = .0300

RUN NO. 143/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAO	BETA0	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
-6.293	.406	-.15319	.12093	.14051	.14780	-.00650	.00430	-.00060	.02687
GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

ELV-1B = .000 ELV-0B = .000
 RUDDER = .000 SPDBRK = .000
 MACH = 1.550 RN/L = 2.500

PARAMETRIC DATA

RUN NO. 144/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAO	BETA0	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
-4.229	-3.806	-.05038	.11833	.05955	.14690	.07720	-.04990	.02650	.02857
-4.210	.302	-.08438	.11643	.06939	.14260	-.00590	.00420	-.00030	.02517
-4.235	3.933	-.06923	.11493	.07251	.14080	-.08710	.05330	-.02570	.02587
GRADIENT	.00260	-.00044	-.00044	.00181	-.00080	-.02120	.01332	-.00686	-.00036

ELV-1B = .000 ELV-0B = .02857
 RUDDER = .000 SPDBRK = .02517
 MACH = .00000 RN/L = .00036

PARAMETRIC DATA

RUN NO. 145/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAO	BETA0	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
-.028	-5.681	.11219	.11592	-.06171	.14520	.08250	-.04950	.03390	.02229
-.024	-3.844	.10244	.11323	-.06615	.14020	.06910	-.03580	.02280	.02637
-.022	.347	.07124	.11144	-.03238	.13480	-.00570	.00280	-.00050	.02335
.001	3.898	.06655	.11114	-.04478	.13520	-.06670	.03720	-.02300	.02406
.014	5.597	.09250	.11193	-.05192	.13860	-.10160	.05120	-.03710	.02667
GRADIENT	.00221	-.00027	-.00027	.00159	-.00066	-.01636	.00940	.0591	-.00039

ELV-1B = .000 ELV-0B = .02229
 RUDDER = .000 SPDBRK = .02637
 MACH = .00000 RN/L = .00039

PARAMETRIC DATA

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IAB1B - FORCE SOURCE DATA TABULATION

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AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED

(RET039) (03 OCT 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

ELV-1B = .000 ELV-0B = .000
 RUDDER = .000 SPOBRK = .000
 YACH = 1.550 RN/L = 2.500

RUN NO. 146/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAO	BETAO	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
3.533	-3.877	.24843	.10973	-.15212	.13450	.04280	-.02320	.02020	.02577
3.564	.361	.23718	.10884	-.15213	.13070	-.00290	.00080	.00050	.02186
3.575	3.908	.24710	.10583	-.16320	.13390	-.05000	.02520	-.02070	.02897
	GRADIENT	-.00025	-.00036	-.00006	-.00010	-.01188	.00520	-.00523	.00026

RUN NO. 147/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAO	BETAO	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
6.255	.393	.30200	.10005	-.19610	.12920	-.00160	-.00020	.00060	.02355
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

ELV-1B = .000 ELV-0B = .000
 RUDDER = .000 SPOBRK = .000
 YACH = 2.000 RN/L = 2.500

RUN NO. 148/ 0 RN/L = 2.55 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAO	BETAO	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
-6.299	.072	-.10576	.12244	.10733	.14580	-.00330	.00250	.00020	.02336
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 149/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAO	BETAO	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
-4.312	-4.221	-.04492	.11663	.05732	.14290	.08360	-.05410	.02950	.02527
-4.288	.038	-.05591	.11724	.07555	.14110	-.00250	.00210	.00040	.02365
-4.260	3.604	-.05450	.11243	.06215	.13740	-.03510	.03270	-.03110	.02497
	GRADIENT	-.00136	-.00051	.00074	-.00069	-.02215	.01487	-.00772	-.00018

(RET040) (03 OCT 75)

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IAB18 - FORCE SOURCE DATA TABULATION

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AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED (RET040) (03 OCT 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

ELV-18 = .000 ELV-08 = .000
 RUDDER = .000 SPDBRK = .000
 MACH = 2.000 RN/L = 2.500

RUN NO. 150/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0	BETA0	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
-0.077	-6.251	.07025	.10603	-.03469	.13320	.11870	-.07790	.04000	.02717
-0.075	-4.195	.05257	.10733	-.02099	.13440	.08090	-.05290	.02720	.02707
-0.072	.017	.02465	.10484	.00145	.12810	-.00120	.00100	.00050	.02326
-0.054	3.568	.03697	.10264	-.01095	.12520	-.09540	.05520	-.02650	.02356
-0.044	6.274	.04833	.10164	-.02315	.12510	-.12740	.09383	-.04000	.02446
	GRADIENT	-.00216	-.00960	.00142	-.00107	-.02136	.01402	-.00690	-.00047

RUN NO. 151/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0	BETA0	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
3.465	-4.189	.17010	.10093	-.11063	.12620	.07080	-.04550	.02350	.02527
3.478	.022	.15869	.09784	-.09759	.12040	.00000	-.00370	.00110	.02256
3.487	3.575	.16033	.09434	-.10589	.11900	-.07310	.04720	-.02200	.02416
	GRADIENT	-.00134	-.00078	.00069	-.00094	-.01848	.01190	-.00584	-.00016

RUN NO. 152/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0	BETA0	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
6.162	.040	.21903	.09704	-.14727	.11930	.00050	-.00140	.00150	.02226
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

ELV-18 = .000 ELV-08 = .000
 RUDDER = .000 SPDBRK = .000
 MACH = 2.200 RN/L = 2.500

RUN NO. 153/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0	BETA0	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
-6.332	-1.112	-.08958	.11374	.09188	.14290	.00570	-.00440	.00320	.02316
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED (RET041) (03 OCT 75)

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IAB18 - FORCE SOURCE DATA TABULATION

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(RETOM) (03 OCT 75)

AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED

REFERENCE DATA

SREF = 2690.0000 SO.FT. XMRP = 976.0000 IN. XT
 LRF = 1297.0000 IN. YMRP = 1000.0000 IN. YT
 BRF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
 SCALE = .0300

ELV-18 = .000 ELV-08 = .000
 RUDDER = .000 SPOBRK = .000
 MACH = 2.200 RN/L = 2.500

PARAMETRIC DATA

RUN NO. 154/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00
 ALPHAO BETAO CLMF CA CYNF CBL CABT
 -4.327 -4.351 -.03889 .11463 .09550 .03260 .02577
 -4.302 -1.140 -.04971 .11274 .06920 .00380 .02336
 -4.281 3.415 -.04360 .10964 .05373 .02720 .02666
 GRADIENT -.00057 -.00064 -.00009 -.00104 -.02308 .01515 -.00041

RUN NO. 155/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00
 ALPHAO BETAO CLMF CA CYNF CBL CABT
 -1.145 -6.442 .05590 .10273 .12850 .04190 .02677
 -1.137 -4.372 .04317 .10303 .09170 .03020 .02527
 -1.130 -1.176 .02037 .10134 .06548 .00330 .02296
 -1.117 3.384 .05733 .09300 .02330 .02450 .02226
 -1.112 6.096 .03555 .08244 .01185 .03300 .02396
 GRADIENT -.00189 -.00162 .00103 -.00102 -.02186 .01450 -.00039

RUN NO. 156/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00
 ALPHAO BETAO CLMF CA CYNF CBL CABT
 3.395 -4.359 .13305 .12070 .08330 .02660 .02486
 3.403 -1.170 .09254 .11440 .00780 .00320 .02186
 3.411 3.387 .12393 .11290 .07090 .02140 .02276
 GRADIENT -.00205 -.00074 .00127 -.00102 -.01994 .01115 -.00028

RUN NO. 157/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00
 ALPHAO BETAO CLMF CA CYNF CBL CABT
 6.079 -1.145 .17416 .11170 .00720 .00310 .02156
 GRADIENT .00000 .00000 .00000 .00000 .00000 .00000 .00000

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IAB18 - FORCE SOURCE DATA TABULATION

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(RETOM2) (03 OCT 75)

AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED

REFERENCE DATA

SREF = 2690.0000 SQ.FT.
 LREF = 1297.0000 IN.
 BREF = 1297.0000 IN.
 SCALE = .0300

XMRP = 976.0000 IN. XT
 YMRP = .0000 IN. YT
 ZMRP = 400.0000 IN. ZT

PARAMETRIC DATA

ELV-18 = .000 ELV-08 = .000
 RUDDER = .000 SPOBRK = .000
 MACH = 2.500 RN/L = 2.500

RUN NO. 158/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAO
-6.275

BETAO
-3.999
GRADIENT

CNF
-.06747
.00000

CAF
.11895
.00000

CLMF
.07540
.00000

CA
.13810
.00000

CY
-.00790
.00540

CYNF
.00540
.00000

CBL
-.00170
.00000

CABT
.01915
.00000

RUN NO.

159/ 0

RN/L = 2.52

GRADIENT INTERVAL = -5.00/ 5.00

ALPHAO
-4.238
-4.215
-4.201

BETAO
-3.999
GRADIENT

CNF
-.03508
-.04193
-.04033
-.00057

CAF
.11254
.11075
.10915
-.00044

CLMF
.05162
.05503
.05087
-.00007

CA
.13390
.12890
.12860
-.00070

CY
.07470
-.00790
-.0570
-.02192

CYNF
-.04810
.00540
.06110
.01405

CBL
.02480
-.00170
-.02990
-.00704

CABT
.02136
.01815
.01945
-.00026

RUN NO.

160/ 0

RN/L = 2.52

GRADIENT INTERVAL = -5.00/ 5.00

ALPHAO
-.088
-.087
-.082
-.071
-.067

BETAO
-6.077
GRADIENT

CNF
.03379
.03592
.0053
.02018
.02504
.00009

CAF
.03954
.03934
.03595
.03445
.03545
-.00058

CLMF
-.02504
.03699
.01550
.0247
-.00373
-.00049

CA
.12200
.12040
.11450
.11350
.11640
-.00091

CY
.11060
.08990
-.00720
-.08650
-.12630
-.02001

CYNF
-.07130
-.04410
.00470
.05510
.03220
.01277

CBL
.03530
.03270
-.00160
-.03660
-.03220
-.00635

CABT
.02246
.02146
.01875
.01935
.01985
-.00032

RUN NO.

161/ 0

RN/L = 2.52

GRADIENT INTERVAL = -5.00/ 5.00

ALPHAO
3.400
3.413
3.420

BETAO
-4.002
GRADIENT

CNF
.08803
.08155
.09545
.00089

CAF
.08975
.08695
.08435
-.00070

CLMF
-.04756
-.04220
-.05603
-.00103

CA
.11060
.10590
.10390
-.00089

CY
.06130
-.00670
-.07730
-.01790

CYNF
-.03920
.00420
.04900
.01139

CBL
.01990
-.00150
-.02350
-.00560

CABT
.02085
.01905
.01955
-.00018

RUN NO.

162/ 0

RN/L = 2.52

GRADIENT INTERVAL = -5.00/ 5.00

ALPHAO
6.075

BETAO
.158
GRADIENT

CNF
.12303
.00000

CAF
.09365
.00000

CLMF
-.08340
.00000

CA
.10280
.00000

CY
-.00650
.00000

CYNF
.00370
.00000

CBL
-.00140
.00000

CABT
.01915
.00000

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT ELV-18 = 8.000 ELV-09 = .000
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT RUDDER = .000 SPOBRK = .000
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT MACH = 1.550 RN/L = 2.500
 SCALE = .0300

PARAMETRIC DATA

RUN NO. 163/ 0 RN/L = 2.54 GRADIENT INTERVAL = -5.00/ 5.00
 ALPHA0 BETAO CMF CAF CA CYNF CBL CABT
 -6.239 .409 .12223 .11638 .14840 .00450 .00040 .02617
 GRADIENT .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000

RUN NO. 164/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00
 ALPHA0 BETAO CMF CAF CA CYNF CBL CABT
 -4.227 -3.808 .02598 .03700 .14550 .07750 .02700 .02687
 -4.204 .384 -.05901 .06208 .14340 .00370 .00000 .02557
 -4.169 3.933 -.04247 .04851 .14030 .08640 .02630 .02416
 GRADIENT -.00230 .00032 .00162 -.00367 -.02114 .01332 -.00587 -.00035

RUN NO. 165/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00
 ALPHA0 BETAO CMF CAF CA CYNF CBL CABT
 -2.122 .375 .01525 .00571 .13960 .00570 .00010 .02496
 GRADIENT .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000

RUN NO. 166/ 0 RN/L = 2.51 GRADIENT INTERVAL = -5.00/ 5.00
 ALPHA0 BETAO CMF CAF CA CYNF CBL CABT
 -.030 -5.879 .11961 .08736 .14550 .09140 .03400 .03219
 -.027 -3.845 .12851 .07934 .14030 .06030 .02330 .02557
 -.030 -1.739 .10304 .06863 .13740 .03030 .01240 .02356
 -.019 .351 .08406 .05621 .13500 .00630 .00000 .02335
 -.003 2.455 .10551 .06295 .13500 .04280 .01280 .02185
 .009 3.897 .11408 .07016 .13540 .06630 .03720 .02426
 .019 6.597 .11870 .07615 .13330 .10110 .02270 .02717
 GRADIENT -.00181 .00024 .00119 -.00050 .01657 .00930 -.00504 -.00026

RUN NO. 167/ 0 RN/L = 2.51 GRADIENT INTERVAL = -5.00/ 5.00
 ALPHA0 BETAO CMF CAF CA CYNF CBL CABT
 2.072 .352 .18523 .12075 .13270 .00510 .00000 .02216
 GRADIENT .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000

DATE 21 OCT 75

IAB18 - FORCE SOURCE DATA TABULATION

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AMES97-019(IAB1) LVAP ORBITER-ALL ML SEALED

(RET043) (03 OCT 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT.
 LREF = 1297.0000 IN.
 BREF = 1297.0000 IN.
 SCALE = .0300

KMRP = 976.0000 IN. XT
 YMRP = .0000 IN. YT
 ZMRP = 400.0000 IN. ZT

ELV-18 =
 RUDDER =
 MACH =

PARAMETRIC DATA

8.000 ELV-08 = .000
 .000 SPOBRK = .000
 1.550 RN/L = 2.500

RUN NO. 168/ 0 RN/L = 2.51 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0
 3.555
 3.560
 3.578
 GRADIENT

BETA0
 -3.814
 .365
 3.907
 GRADIENT

CLMF
 -18509
 -17420
 -18232
 .00043

CA
 .13490
 .13120
 .13280
 -.00029

CY
 .04170
 -.00370
 -.05060
 -.01192

CYNF
 -.02280
 .00120
 .02580
 .00628

CBL
 .02010
 .00080
 -.02070
 -.30526

CABT
 .02497
 .02116
 .02577
 .00007

RUN NO. 169/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0
 6.256
 .389
 GRADIENT

BETA0
 .389
 .32577
 .00000
 GRADIENT

CLMF
 -21822
 .00000
 .00000
 .00000

CA
 .13080
 .00000
 .00000
 .00000

CY
 -.00190
 .00000
 .00000
 .00000

CYNF
 -.00010
 .00000
 .00000
 .00000

CBL
 .00070
 .00000
 .00000
 .00000

CABT
 .02116
 .00000
 .00000
 .00000

AMES97-019(IAB1) LVAP ORBITER-ALL ML SEALED

(RET044) (03 OCT 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT.
 LREF = 1297.0000 IN.
 BREF = 1297.0000 IN.
 SCALE = .0300

KMRP = 975.0000 IN. XT
 YMRP = .0000 IN. YT
 ZMRP = 400.0000 IN. ZT

ELV-18 =
 RUDDER =
 MACH =

PARAMETRIC DATA

8.000 ELV-08 = .000
 .000 SPOBRK = .000
 2.000 RN/L = 2.500

RUN NO. 170/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0
 -6.299
 .071
 GRADIENT

BETA0
 .071
 -.03450
 .00000
 GRADIENT

CLMF
 .08818
 .00000
 .00000
 .00000

CA
 .14730
 .00000
 .00000
 .00000

CY
 .00260
 .00000
 .00000
 .00000

CYNF
 -.00230
 .00000
 .00000
 .00000

CBL
 .00220
 .00000
 .00000
 .00000

CABT
 .02296
 .00000
 .00000
 .00000

RUN NO. 171/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0
 -4.231
 .337
 3.599
 GRADIENT

BETA0
 -4.163
 -.02398
 -.04583
 -.03544
 -.00159
 GRADIENT

CLMF
 .03980
 .05683
 .04522
 .00093

CA
 .14330
 .14280
 .13880
 -.00057

CY
 .08610
 .00190
 -.09300
 -.02261

CYNF
 -.05630
 -.00180
 .05890
 .01475

CBL
 .03100
 .00210
 -.02980
 -.30780

CABT
 .02507
 .02386
 .02406
 -.00013

RUN NO. 172/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0
 -2.161
 .037
 GRADIENT

BETA0
 .037
 -.00253
 .00000
 GRADIENT

CLMF
 .02163
 .00000
 .00000
 .00000

CA
 .13570
 .00000
 .00000
 .00000

CY
 .00100
 .00000
 .00000
 .00000

CYNF
 -.00100
 .00000
 .00000
 .00000

CBL
 .00160
 .00000
 .00000
 .00000

CABT
 .02365
 .00000
 .00000
 .00000

DATE 21 OCT 75

1A818 - FORCE SOURCE DATA TABULATION

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AMES97-319 (1A81) LVAP CRBITER-ALL HL SEALED

(RETCW) 1 03 00 75 1

REFERENCE DATA

SPRF	=	2690.0000	SO. FT.	KRRP	=	975.0000	N.	ZT
LACF	=	1297.0000	IN.	VGRP	=	0.0000	N.	
DRCF	=	1297.0000	IN.	ZGRP	=	900.0000	N.	
SCALE	=	.0300						

PARAMETRIC CATA

DATE	DESCRIPTION	AMOUNT	BALANCE
10-1-68	10-1-68	100.00	100.00
10-2-68	10-2-68	100.00	200.00
10-3-68	10-3-68	100.00	300.00
10-4-68	10-4-68	100.00	400.00
10-5-68	10-5-68	100.00	500.00
10-6-68	10-6-68	100.00	600.00
10-7-68	10-7-68	100.00	700.00
10-8-68	10-8-68	100.00	800.00
10-9-68	10-9-68	100.00	900.00
10-10-68	10-10-68	100.00	1000.00
10-11-68	10-11-68	100.00	1100.00
10-12-68	10-12-68	100.00	1200.00
10-13-68	10-13-68	100.00	1300.00
10-14-68	10-14-68	100.00	1400.00
10-15-68	10-15-68	100.00	1500.00
10-16-68	10-16-68	100.00	1600.00
10-17-68	10-17-68	100.00	1700.00
10-18-68	10-18-68	100.00	1800.00
10-19-68	10-19-68	100.00	1900.00
10-20-68	10-20-68	100.00	2000.00
10-21-68	10-21-68	100.00	2100.00
10-22-68	10-22-68	100.00	2200.00
10-23-68	10-23-68	100.00	2300.00
10-24-68	10-24-68	100.00	2400.00
10-25-68	10-25-68	100.00	2500.00
10-26-68	10-26-68	100.00	2600.00
10-27-68	10-27-68	100.00	2700.00
10-28-68	10-28-68	100.00	2800.00
10-29-68	10-29-68	100.00	2900.00
10-30-68	10-30-68	100.00	3000.00
10-31-68	10-31-68	100.00	3100.00
11-1-68	11-1-68	100.00	3200.00
11-2-68	11-2-68	100.00	3300.00
11-3-68	11-3-68	100.00	3400.00
11-4-68	11-4-68	100.00	3500.00
11-5-68	11-5-68	100.00	3600.00
11-6-68	11-6-68	100.00	3700.00
11-7-68	11-7-68	100.00	3800.00
11-8-68	11-8-68	100.00	3900.00
11-9-68	11-9-68	100.00	4000.00
11-10-68	11-10-68	100.00	4100.00
11-11-68	11-11-68	100.00	4200.00
11-12-68	11-12-68	100.00	4300.00
11-13-68	11-13-68	100.00	4400.00
11-14-68	11-14-68	100.00	4500.00
11-15-68	11-15-68	100.00	4600.00
11-16-68	11-16-68	100.00	4700.00
11-17-68	11-17-68	100.00	4800.00
11-18-68	11-18-68	100.00	4900.00
11-19-68	11-19-68	100.00	5000.00
11-20-68	11-20-68	100.00	5100.00
11-21-68	11-21-68	100.00	5200.00
11-22-68	11-22-68	100.00	5300.00
11-23-68	11-23-68	100.00	5400.00
11-24-68	11-24-68	100.00	5500.00
11-25-68	11-25-68	100.00	5600.00
11-26-68	11-26-68	100.00	5700.00
11-27-68	11-27-68	100.00	5800.00
11-28-68	11-28-68	100.00	5900.00
11-29-68	11-29-68	100.00	6000.00
11-30-68	11-30-68	100.00	6100.00
12-1-68	12-1-68	100.00	6200.00
12-2-68	12-2-68	100.00	6300.00
12-3-68	12-3-68	100.00	6400.00
12-4-68	12-4-68	100.00	6500.00
12-5-68	12-5-68	100.00	6600.00
12-6-68	12-6-68	100.00	6700.00
12-7-68	12-7-68	100.00	6800.00
12-8-68	12-8		

RUN NO.	173/ 0	RN/L	2.52	GRADIENT INTERVAL	-5.00/ 5.00
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	BETA0	CMF	CAF	CLMF	CA	CY	CYMF	CBL	CAB1
ALPHA0									
0									
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
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18									
19									
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73									
74									
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77									
78									
79									
80									

RUN NO.	174/ 0	IN/L = 2.52	GRADIENT INTERVAL = -5.00/ 5.00
---------	--------	-------------	---------------------------------

ALPHA0	1.987	BETA0	.023	CNF	.10201	CAF	.10284	CLMF	-.06155	CA	.12650	CY	-.00070	CYNF	-.00010	CBL	-.00070	CABT	.02375
--------	-------	-------	------	-----	--------	-----	--------	------	---------	----	--------	----	---------	------	---------	-----	---------	------	--------

RUN NO.	175/ 0	RN/L = 2.52	GRADIENT INTERVAL = -5.00/ 5.00
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[illegible]

RUN NO. 176/ C RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0	6.167	BETA0	0.08	CNF	0.0000	CAF	0.0000	CLMF	-0.16705	CA	0.12340	CY	-0.00190	CYVE	0.0030	CBL	0.0000	CABT	0.02446
--------	-------	-------	------	-----	--------	-----	--------	------	----------	----	---------	----	----------	------	--------	-----	--------	------	---------

AMES37-019/1AB1) LVAP ORBITER-ALL HL SEALED

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

ELV-1B = 8.000 ELV-OB = .000
 RUDDER = .000 SPOBRK = .000
 MACH = 2.200 RN/L = 2.500

RUN NO. 177/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00
 BETAO = .120 CNF = .07350 CA = .00840 CY = .00570
 GRADIENT = .00000 .00000 .00000 .00000

CBL .00400
 CABT .02246
 .00000

RUN NO. 178/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00
 BETAO = .11573 CNF = .03684 CA = .09540 CY = .06290
 GRADIENT = .11424 .04625 .13790 .00950
 .11154 .03950 .13400 .08540
 .00098 .00040 .00111 .02321 .01531

CBL .03340
 CABT .02687
 .00400 .02366
 .02760 .02246
 .00057

RUN NO. 179/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00
 BETAO = .165 CNF = .00194 CA = .13240 CY = .00620
 GRADIENT = .00000 .00000 .00000 .00000

CBL .00400
 CABT .02406
 .00000

RUN NO. 180/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00
 BETAO = .10403 CNF = .04027 CA = .12870 CY = .08430
 GRADIENT = .10413 .05722 .13140 .09090
 .10343 .04358 .13000 .04920 .03337
 .10334 .01078 .12730 .00720 .00520
 .10174 .01455 .12490 .03530 .02340
 .10004 .04504 .12370 .07950 .05310
 .10153 .05072 .12700 .02250 .08040
 .00049 .00094 .00104 .02145 .01435

CBL .04290
 CABT .02807
 .03090 .02727
 .01710 .02657
 .00330 .02396
 .01060 .02316
 .02500 .02366
 .03850 .02547
 .00704 .00055

RUN NO. 181/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00
 BETAO = .09774 CNF = .04298 CA = .12170 CY = .00460
 GRADIENT = .00000 .00000 .00000 .00000

CBL .00290
 CABT .02396
 .00000

ALPHAO 1.933

DATE 21 OCT 75

IAB1B - FORCE SOURCE DATA TABULATION

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(RET045) (03 OCT 75)

AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED

REFERENCE DATA

SREF = 2690.0000 SQ.FT.
LREF = 1297.0000 IN.
BREF = 1297.0000 IN.
SCALE = .0300

XMRP = 976.0000 IN. XT
YMRP = .0000 IN. YT
ZMRP = 400.0000 IN. ZT

ELV-1B =
RUCER =
WACH =

8.000 ELV-OB = .000
.000 SPOBRK = .000
2.200 RN/L = 2.500

PARAMETRIC DATA

RUN NO. 182/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0
3.402
3.403
3.408

BETA0
-4.411
-1.163
3.392
GRADIENT

CNF
.15489
.13513
.13901
-0.00212

CAF
.09683
.09544
.09314
-0.00347

CLMF
-1.10663
-0.08630
-0.02668
.00135

CA
.12880
.11810
.11730
-0.00072

CY
.09050
.00360
-0.07380
-0.01972

CYNF
-0.05450
-0.00330
-0.49000
.01323

CBL
.02660
.00240
-0.02400
-0.05626

CABT
.02597
.02266
.02416
-0.00025

ALPHA0
6.072

BETA0
-1.153
GRADIENT

CNF
.19129
.00000

CAF
.03264
.00000

CLMF
-1.13035
.00000

CA
.11600
.00000

CY
.00530
.00000

CYNF
-0.00460
.00000

CBL
.00270
.00000

CABT
.02336
.00000

ELV-OB = -4.000
SPOBRK = .000
RN/L = 2.500

(RET046) (03 OCT 75)

AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED

REFERENCE DATA

SREF = 2690.0000 SQ.FT.
LREF = 1297.0000 IN.
BREF = 1297.0000 IN.
SCALE = .0300

XMRP = 976.0000 IN. XT
YMRP = .0000 IN. YT
ZMRP = 400.0000 IN. ZT

ELV-1B =
RUCER =
WACH =

10.000 ELV-OB = -4.000
.000 SPOBRK = .000
1.550 RN/L = 2.500

PARAMETRIC DATA

RUN NO. 184/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0
-6.268

BETA0
.417
GRADIENT

CNF
-0.12586
.00000

CAF
.12243
.00000

CLMF
.11550
.00000

CA
.15000
.00000

CY
-0.00720
.00000

CYNF
.03450
.00000

CBL
-0.00030
.00000

CABT
.02757
.00000

ELV-OB = -4.000
SPOBRK = .000
RN/L = 2.500

RUN NO. 185/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0
-4.270
-4.251
-4.215

BETA0
-3.851
.391
3.923
GRADIENT

CNF
-0.02616
-0.05817
-0.04313
-0.00235

CAF
.11903
.11893
.11764
-0.00017

CLMF
.03725
.06243
.04941
.00171

CA
.14680
.14530
.14240
-0.00056

CY
.07630
-0.00710
-0.08710
-0.02097

CYNF
-0.04970
.03420
.05360
.01132

CBL
.02680
.00000
-0.02550
-0.05684

CABT
.02777
.02037
.02476
-0.00039

RUN NO. 186/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0
-2.110

BETA0
.392
GRADIENT

CNF
.01478
.00000

CAF
.11523
.00000

CLMF
.00626
.00000

CA
.14130
.00000

CY
-0.00620
.00000

CYNF
.00330
.00000

CBL
.00000
.00000

CABT
.02607
.00000

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IAB1B - FORCE SOURCE DATA TABULATION

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(RET046) (03 OCT 75)

AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT ELV-IB = 10.000 ELV-OB = -4.000
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT RUDDER = .000 SPDBRK = .000
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT MACH = 1.550 RN/L = 2.500
 SCALE = .0300

PARAMETRIC DATA

ALPHA0
 .014
 .012
 .017
 .008
 .002
 .017
 .028

BETA0
 -5.856
 -3.894
 -1.729
 .358
 2.458
 3.895
 6.518
 GRADIENT

CNF
 .13844
 .12690
 .10639
 .09680
 .10326
 .11291
 .11824
 -.00175

CAF
 .11612
 .11533
 .11433
 .11424
 .11364
 .11313
 .11323
 -.00026

CLMF
 -.08639
 -.07527
 -.06329
 -.05526
 -.06153
 -.06912
 -.07512
 .00115

CA
 .14740
 .14180
 .13940
 .13840
 .13710
 .13860
 .14090
 -.00046

CY
 .08130
 .06010
 .02970
 -.00540
 -.04210
 -.06690
 -.10100
 -.01646

CYNF
 -.04820
 -.03620
 -.01910
 .00320
 .02560
 .03740
 .06050
 .00971

CBL
 .03390
 .02310
 .01240
 -.00020
 -.01260
 -.02290
 -.03690
 -.00590

CABT
 .03128
 .02647
 .02307
 .02416
 .02346
 .02347
 .02767
 -.00020

ALPHA0
 2.074

BETA0
 .362
 GRADIENT

CNF
 .16574
 .00000

CAF
 .11224
 .00000

CLMF
 -.12078
 .00000

CA
 .13520
 .00000

CY
 -.00460
 .00000

CYNF
 .02310
 .00000

ALPHA0
 3.563
 3.565
 3.578

BETA0
 -3.860
 .374
 3.899
 GRADIENT

CNF
 .27336
 .26081
 .26885
 -.00066

CAF
 .11093
 .11144
 .10803
 -.00034

CLMF
 -.18432
 -.17313
 -.18247
 .00032

CA
 .13650
 .13320
 .13470
 -.00025

CY
 .04270
 -.00300
 -.04920
 -.01181

CYNF
 -.02350
 .00060
 .02480
 .00621

CBL
 .02040
 .00070
 -.02020
 -.00521

CABT
 .02567
 .02176
 .02667
 .00009

ALPHA0
 6.314

BETA0
 .393
 GRADIENT

CNF
 .32575
 .00000

CAF
 .11044
 .00000

CLMF
 -.21818
 .00000

CA
 .13300
 .00000

CY
 -.00160
 .00000

CYNF
 -.00040
 .00000

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IAB12 - FORCE SOURCE DATA TABULATION

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A4ES97-012(IAB1) LVAP ORBITER-AL. H1 SEALED

(RET047) (03 OCT 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

ELV-18 = 10.000 ELV-08 = -4.000
 RUDDER = .000 SPDBRK = .000
 MACH = 2.000 RN/L = 2.500

RUN NO. 191/ 0 RN/L = 2.55 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0
-6.283BETA0
.072
GRADIENTCNF
-.08259
.00000CAF
.12494
.00000CLMF
.08693
.00000CA
.14880
.00000CY
.00190
.00000CYNF
-.00170
.00000CJL
.00200
.00000CABT
.02386
.00000

RUN NO. 192/ 0

CNF
-.02331
-.04447CAF
.11963
.12024CLMF
.03857
.05590CA
.14530
.14490CY
.08630
.00190CYNF
-.05640
-.00170CBL
.03120
.00200CABT
.02567
.02466ALPHA0
-4.315
-4.282
-4.245BETA0
-4.217
-.044
3.589
GRADIENTCNF
-.02331
-.04447
-.03402
-.00149CAF
.11963
.12024
.11614
-.00043CLMF
.03857
.05590
.04450
.00087CA
.14530
.14490
.14060
-.00059CY
.08630
.00190
-.08690
-.02234CYNF
-.05640
-.00170
.05810
.01461CBL
.03120
-.02960
-.00776CABT
.02567
.02466
-.00016

RUN NO. 193/ 0

CNF
-.02112
.00000CAF
.11424
.00000CLMF
.02080
.00000CA
.13870
.00000CY
.00220
.00000CYNF
-.00200
.00000CBL
.00210
.00000CABT
.02446
.00000ALPHA0
-2.148BETA0
.035
GRADIENTCNF
-.02112
.00000CAF
.11424
.00000CLMF
.02080
.00000CA
.13870
.00000CY
.00220
.00000CYNF
-.00200
.00000CBL
.00210
.00000CABT
.02446
.00000

RUN NO. 194/ 0

CNF
.08892
.07301CAF
.10903
.10943CLMF
-.05089
-.03924CA
.13630
.13730CY
.11940
.08240CYNF
-.07890
-.05450CBL
.04120
.02850CABT
.02727
.02787ALPHA0
-.077
-.076
-.074
-.070
-.060
-.050
-.026BETA0
-6.234
-4.257
-2.080
0.11
2.115
3.551
6.169
GRADIENTCNF
.08892
.07301
.05539
.02853
.05188
.05857
.06804
-.00192CAF
.10903
.10943
.10963
.10824
.10914
.10643
.10653
-.00037CLMF
-.05089
-.03924
-.02671
-.01960
-.02248
-.02976
-.03963
.00129CA
.13630
.13730
.13710
.13290
.13250
.13190
.13200
-.00078CY
.11940
.08240
.04030
.00310
-.03730
-.07980
-.12180
-.02017CYNF
-.07890
-.05450
-.02670
-.00290
.02300
.05230
.08090
.01320CBL
.04120
.02850
.01470
.00230
-.01100
-.02530
-.03920
-.00669CABT
.02727
.02787
.02747
.02466
.02436
.02547
.02547
-.00042

RUN NO. 195/ 0

CNF
.10515
.00000CAF
.10444
.00000CLMF
-.05450
.00000CA
.12900
.00000CY
.00580
.00000CYNF
-.00540
.00000CBL
.00310
.00000CABT
.02456
.00000ALPHA0
1.992BETA0
0.10
GRADIENTCNF
.10515
.00000CAF
.10444
.00000CLMF
-.05450
.00000CA
.12900
.00000CY
.00580
.00000CYNF
-.00540
.00000CBL
.00310
.00000CABT
.02456
.00000

DATE 21 OCT 75

IAB1B - FORCE SOURCE DATA TABULATION

(RET047) (03 OCT 75)

AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
 SCALE = .0300

RUN NO. 196/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0	BETA0	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
3.472	-4.227	.13870	.10413	-.12733	.13050	.07230	-.04760	.02480	.02637
3.475	.017	.17778	.10154	-.11878	.12590	.00500	-.00520	.00320	.02436
3.480	3.492	.17698	.09863	-.12226	.12480	-.06810	.04380	-.02080	.02617
	GRADIENT	-.00131	-.00071	.00071	-.00075	-.01810	.01177	-.00588	-.00004

ELV-18 = 10.000
 RUDDER = .000
 MACH = 2.000
 ELV-08 = -4.000
 SPOBRK = .000
 RN/L = 2.500

PARAMETRIC DATA

RUN NO. 197/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0	BETA0	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
6.220	.042	.24352	.10033	-.16848	.12530	.00480	-.00520	.00320	.02497
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
 SCALE = .0300

RUN NO. 100/ 0 RN/L = 3.03 GRADIENT INTERVAL = -5.00/ 5.00

BETA0	ALPHA0	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
.345	-7.004	-.05810	.01650	.03190	-.03370	.02200	-.01124	.00970	.02220
.321	-4.823	-.03870	.00960	.03200	-.01640	.00990	-.00745	.00950	.02250
.336	-.374	-.01390	.03710	.03420	.01310	-.01430	-.00257	.00850	.02530
.412	4.014	.00630	.00480	.03680	.00920	-.01550	.00143	.00980	.02700
.468	8.441	.03760	-.00580	.03730	-.01190	-.00170	.00752	.00900	.02830
.493	10.654	.05720	-.01260	.03740	-.02080	.00370	.01139	.00860	.02880
	GRADIENT	.00509	-.00054	.00054	.00291	-.00288	.00101	.00003	.00051

ELV-18 = .000
 RUDDER = .000
 MACH = 2.500
 ELV-08 = .000
 SPOBRK = .000
 RN/L = 3.000

PARAMETRIC DATA

(RET130) (03 OCT 75)

AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED

DATE 21 OCT 75

1A81B - FORCE SOURCE DATA TABULATION

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(RETL31) (03 OCT 75)

AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
 SCALE = .0300

ELV-1B =
 RUDDER =
 MACH =

ELV-08 = .000
 SPOBRK = .000
 RN/L = 2.200

PARAMETRIC DATA

RUN NO. 101/ 0 RN/L = 3.03 GRADIENT INTERVAL = -5.00/ 5.00

BETAL	ALPHAL	CNF	CLMF	CA	CY	CYNF	CBL	CABT	CAF
.003	-7.146	-.06410	.01810	.03570	-.03730	.02570	-.01245	.01270	.02300
-.030	-4.898	-.04260	.01080	.03580	-.01780	.01180	-.00826	.01210	.02370
-.024	-.412	-.01590	.00550	.03810	.01510	-.01430	-.00304	.01150	.02650
.088	4.028	.00560	.00530	.04090	.01280	-.01830	.00145	.01210	.02880
.170	8.520	.03710	-.00330	.04210	-.01390	-.00150	.00753	.01170	.03040
.208	10.759	.05810	-.01050	.04190	-.02410	.00470	.01164	.01130	.03050
	GRADIENT	.00551	-.00052	.00057	.00343	-.00338	.00109	-.00000	.00057

(RETL32) (03 OCT 75)

AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
 SCALE = .0300

ELV-1B =
 RUDDER =
 MACH =

ELV-08 = .000
 SPOBRK = .000
 RN/L = 2.000

PARAMETRIC DATA

RUN NO. 102/ 0 RN/L = 3.03 GRADIENT INTERVAL = -5.00/ 5.00

BETAL	ALPHAL	CNF	CLMF	CA	CY	CYNF	CBL	CABT	CAF
.229	-7.169	-.06140	.01460	.03900	-.04200	.02760	-.01202	.01430	.02470
.182	-4.904	-.04020	.00790	.03880	-.01920	.01200	-.00783	.01300	.02580
.163	-.360	-.01620	.00890	.04070	.01630	-.01480	-.00306	.01170	.02900
.307	4.093	.00570	.00510	.04330	.01240	-.01920	.00130	.01280	.03050
.402	8.619	.03260	-.00330	.04460	-.01670	-.00090	.00659	.01250	.03210
.442	10.885	.05570	-.00820	.04380	-.02980	.00720	.01122	.01230	.03150
	GRADIENT	.00510	-.00031	.00050	.00353	-.00348	.00101	-.00002	.00052

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT

LREF = 1297.0000 IN. YMRP = .0000 IN. YT

BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT

SCALE = .0300

ELV-1B = .000 ELV-G3 = .000

RUDDER = .000 SPOBRK = 55.000

MACH = 1.550 RN/L = 3.000

RUN NO. 103/ 0 RN/L = 3.01 GRADIENT INTERVAL = -5.00/ 5.00

BETAL .679

ALPHAL -7.209

CNF -.05500

CLMF .00870

CA .04270

CY -.03790

CYNF .01990

CBL -.01075

CABT .01410

CAF .02860

.606

.497

.646

.782

GRADIENT 8.647

.00424

.00029

.00300

.00860

.00970

.00600

.00870

.04210

.01390

.02580

.02100

.00480

.01630

.00297

.00256

.00041

.01830

.00032

.00330

.01070

.03200

.03250

.03540

.00030

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT

LREF = 1297.0000 IN. YMRP = .0000 IN. YT

BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT

SCALE = .0300

ELV-1B = .000 ELV-G3 = .000

RUDDER = .000 SPOBRK = 55.000

MACH = 1.550 RN/L = 3.000

RUN NO. 115/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

BETAL .609

ALPHAL -6.947

CNF -.05820

CLMF .01230

CA .04380

CY -.03500

CYNF .01760

CBL -.01128

CABT .01410

CAF .02970

.544

.492

.515

.580

.630

GRADIENT 6.221

.00421

.00042

.00580

.01270

.01430

.02030

.02910

.04120

.04120

.04410

.04290

.02330

.01500

.00070

.00313

.00016

.04570

.04640

.00070

.01160

.00059

.00186

.00083

PARAMETRIC DATA

(RETL34) (03 OCT 75)

8.000 ELV-08 = -4.000

.000 SPOBRK = .000

1.550 RN/L = 2.500

PARAMETRIC DATA

(RETL34) (03 OCT 75)

8.000 ELV-08 = -4.000

.000 SPOBRK = .000

1.550 RN/L = 2.500

(RETL35) (03 OCT 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT.
 LREF = 1297.0000 IN.
 BREF = 1297.0000 IN.
 SCALE = .0300

XMRP = 975.0000 IN. XT
 YMRP = .0000 IN. YT
 ZMRP = 400.0000 IN. ZT

PARAMETRIC DATA

ELV-OB = 8.000
 RUDDER = .000
 MACH = 1.550
 ELV-OB = -4.000
 SPOBRK = .000
 RN/L = 2.500

RUN NO. 112/ 0 RN/L = 2.54 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETAL	CNF	CLMF	CA	CY	CYNF	CBL	CABT	CAF
-7.069	-3.663	-1.0260	.03970	.04990	-.02690	.01950	-.01983	.01660	.03330
-7.011	-1.511	-.07780	.02460	.04600	-.03580	.02200	-.01325	.01440	.03160
-6.779	.605	-.05830	.01220	.04400	-.03640	.01850	-.01132	.01410	.02990
-6.908	2.779	-.03820	.00090	.04540	-.03010	.00980	-.00726	.01510	.03030
-6.647	4.852	-.02190	-.00770	.04420	-.02900	.00710	-.00416	.01440	.02980
	GRADIENT	.00943	-.00556	-.00056	.00007	-.00174	.00175	-.00017	-.00039

RUN NO. 116/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETAL	CNF	CLMF	CA	CY	CYNF	CBL	CABT	CAF
-4.813	-5.772	-.03020	.03960	.05190	-.00420	.00540	-.01734	.01620	.03570
-4.776	-3.715	-.07400	.02960	.04800	-.00430	.00710	-.01428	.01470	.03330
-4.691	.549	-.04230	.01090	.04310	-.01000	.00220	-.00814	.01220	.03090
-4.586	4.757	-.01560	-.00410	.04370	-.00860	-.00330	-.00293	.01320	.03050
-4.567	6.818	-.00530	-.01110	.04090	-.01260	-.00140	-.00095	.01220	.02870
	GRADIENT	.00689	-.00399	-.00051	-.00004	-.00123	.00134	-.00018	-.00033

RUN NO. 117/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETAL	CNF	CLMF	CA	CY	CYNF	CBL	CABT	CAF
-2.530	-5.789	-.05340	.02150	.05180	.01490	-.00670	-.01219	.01600	.03580
-2.477	-1.623	-.04220	.01910	.04580	.01020	-.00710	-.00810	.01270	.03310
-2.407	2.635	-.01940	.00460	.04480	.01190	-.01470	-.00341	.01350	.03130
-2.358	6.744	-.00060	-.00650	.03910	.00380	-.00360	-.00001	.01070	.02840
	GRADIENT	.00559	-.00341	-.00023	.00040	-.00178	.00110	.00019	-.00042

RUN NO. 118/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETAL	CNF	CLMF	CA	CY	CYNF	CBL	CABT	CAF
-2.253	-5.797	-.04120	.02620	.05370	.03060	-.01780	-.00781	.01600	.03770
-2.237	-3.760	-.03350	.02120	.04970	.02820	-.01730	-.00534	.01440	.03530
-2.193	.473	-.01350	.01270	.04320	.02820	-.02270	-.00352	.01050	.03260
-2.203	4.655	-.00780	.00440	.04290	.01930	-.01910	-.00131	.01220	.03070
-2.197	6.707	-.00230	.00010	.03770	.00970	-.01270	-.00039	.00970	.02800
	GRADIENT	.00305	-.00200	-.00081	-.00111	-.00222	.00050	-.00025	-.00055

DATE 21 OCT 75

1A81B - FORCE SOURCE DATA TABULATION

PAGE 27

(RETL35) (03 OCT 75)

AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED

REFERENCE DATA

SREF = 2690.0000 SQ.FT.
LREF = 1297.0000 IN.
BREF = 1297.0000 IN.
SCALE = .0300

XMRP = 975.0000 IN. XT
YMRP = .0000 IN. YT
ZMRP = 400.0000 IN. ZT

PARAMETRIC DATA

ELV-IB = 8.000 ELV-OB = -4.000
RUDDER = .000 SPDBRK = .000
MACH = 1.550 RN/L = 2.500

RUN NO. 119/ 0 RN/L = 2.54 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAL	BETAL	CNF	CLMF	CA	CY	CYNF	CBL	CABT	CAF
1.957	-5.773	-.02440	.02390	.05410	.03880	-.02650	-.00453	.01580	.03830
1.955	-1.611	-.01570	.01710	.04600	.02630	-.02090	-.00286	.01170	.03430
1.945	2.648	-.00950	.01110	.04450	.01900	-.02140	-.00167	.01240	.03210
1.915	6.744	.00010	.00090	.04050	.00530	-.01120	.00014	.01070	.02980
	GRADIENT	.00146	-.00141	-.00035	-.00171	-.00012	.00028	.00016	-.00052

RUN NO. 120/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAL	BETAL	CNF	CLMF	CA	CY	CYNF	CBL	CABT	CAF
4.159	-5.672	-.00640	.01640	.05290	.02950	-.02560	-.00097	.01540	.03750
4.150	-3.632	-.00340	.01360	.05190	.02290	-.02170	-.00041	.01620	.03570
4.137	.592	-.00240	.01150	.04570	.01330	-.01900	-.00023	.01270	.03300
4.075	4.761	.00190	.00390	.04670	.00450	-.01450	.00053	.01460	.03210
4.071	6.798	.00300	.00230	.04150	-.00290	-.00850	.00066	.01130	.03020
	GRADIENT	.00063	-.00115	-.00062	-.00219	.00086	.00011	-.00019	-.00043

RUN NO. 121/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAL	BETAL	CNF	CLMF	CA	CY	CYNF	CBL	CABT	CAF
6.337	-3.576	.01360	.00610	.05360	.01370	-.01720	.00285	.01730	.03630
6.323	-1.478	.01150	.00670	.04990	.00660	-.01340	.00244	.01460	.03530
6.302	.638	.01030	.00630	.04650	-.00010	-.01110	.00218	.01230	.03420
6.272	2.749	.00930	.00450	.04870	-.00340	-.01020	.00199	.01470	.03400
6.247	4.818	.00650	.00470	.04670	-.00810	-.00810	.00141	.01400	.03270
	GRADIENT	-.00078	-.00024	-.00071	-.00255	.00102	-.00016	-.00031	-.00040

DATE 21 OCT 75

IAB1B - FORCE SOURCE DATA TABULATION

PAGE 28

(RETL36) (03 OCT 75)

AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED

REFERENCE DATA

SREF = 2690.0000 50.FT. XMRP = 976.0000 IN. XT
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

ELV-1B =
 RUDDER =
 MACH =

ELV-OB =
 SPOBRK =
 RN/L =

RUN NO. 122/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETAL	CNF	CLMF	CA	CY	CYNF	CBL	CABT	CAF
-7.023	-4.071	-1.0690	.04690	.04560	-.02710	.02190	-.02059	.01610	.02950
-6.998	-1.946	-.08800	.03410	.04320	-.03480	.02530	-.01699	.01520	.02800
-6.970	-.196	-.06330	.01700	.04020	-.04180	.02220	-.01225	.01440	.02580
-6.928	2.342	-.04480	.00510	.03870	-.04320	.02420	-.00871	.01430	.02440
-6.896	4.448	-.02750	-.00630	.03470	-.04400	.02140	-.00532	.01210	.02260
	GRADIENT	.00947	-.00635	-.00123	-.00198	-.00010	.00182	-.00042	-.00082

RUN NO. 123/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETAL	CNF	CLMF	CA	CY	CYNF	CBL	CABT	CAF
-4.814	-6.170	-.09230	.04430	.04590	.00010	.00380	-.01775	.01440	.03150
-4.790	-4.103	-.07740	.03460	.04420	-.00770	.00820	-.01490	.01450	.02970
-4.745	.134	-.04330	.01120	.03930	-.01900	.01150	-.00843	.01250	.02640
-4.672	4.402	-.01470	-.00700	.03500	-.02290	.03810	-.00288	.01130	.02370
-4.648	6.519	-.00400	-.01380	.03350	-.01650	-.00090	-.00075	.00990	.02360
	GRADIENT	.00737	-.00489	-.00108	-.00179	-.00001	.00141	-.00038	-.00071

RUN NO. 124/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETAL	CNF	CLMF	CA	CY	CYNF	CBL	CABT	CAF
-2.574	-6.166	-.06230	.03240	.04660	.01550	.00840	-.01186	.01360	.03300
-2.549	-1.978	-.04000	.01720	.04330	.00400	.00290	-.00765	.01320	.03010
-2.503	2.271	-.01800	.00250	.03820	-.00190	.00360	-.00345	.01200	.02620
-2.452	6.477	.00080	-.00950	.03440	-.00080	-.01080	.00021	.00940	.02500
	GRADIENT	.00518	-.00346	-.00120	-.00139	-.00016	.00099	-.00028	-.00092

RUN NO. 125/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETAL	CNF	CLMF	CA	CY	CYNF	CBL	CABT	CAF
-3.30	-6.145	-.04060	.02650	.04800	.03260	.02310	-.00758	.01390	.03410
-3.30	-4.088	-.03250	.02060	.04630	.02720	-.02000	-.00605	.01360	.03270
-2.97	.134	-.01990	.01270	.04120	.01600	-.01470	-.00369	.01220	.02900
-2.86	4.345	-.00630	.00220	.03590	.00590	-.01150	-.00113	.01010	.02570
-2.79	6.458	-.00030	-.00150	.03450	.00750	-.01620	-.00005	.00870	.02580
	GRADIENT	.00311	-.00218	-.00125	-.00253	.00101	.00058	-.00041	-.00043

(RETL36) (03 OCT 75)

1A81B - FORCE SOURCE DATA TABULATION
AMES97-019(1A81) LVAP L-SRB - ALL ML SEALED

DATE 21 OCT 75

REFERENCE DATA

SREF = 2000.0000 SQ.FT. XMRP = 976.0000 IN. XT
LREF = 1237.0000 IN. YMRP = .0000 IN. YT
BREF = 1237.0000 IN. ZMRP = 400.0000 IN. ZT
SCALE = .0300

PARAMETRIC DATA

ELV-IB = 8.000 ELV-OB = -4.000
RUDDER = .000 SPOBRK = .000
MACH = 2.000 RN/L = 2.500

RUN NO. 126/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAL	BETAL	CNF	CLMF	CA	CY	CYNF	CBL	CABT	CAF
1.884	-6.062	-0.0930	0.02020	0.04850	0.3800	-0.3070	-0.0359	0.1380	0.3470
1.875	-1.919	-0.0240	0.01410	0.04430	0.0280	-0.0210	-0.00219	0.1330	0.3100
1.863	2.307	-0.0610	0.0810	0.3940	0.0780	-0.1380	-0.0106	0.1170	0.2770
1.856	6.498	-0.0010	0.0230	0.3560	0.0630	-0.1780	0.0006	0.0910	0.2650
	GRADIENT	0.00149	-0.00142	-0.00116	-0.00355	0.0177	0.0027	-0.00038	-0.00078

RUN NO. 127/ 0 RN/L = 2.54 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAL	BETAL	CNF	CLMF	CA	CY	CYNF	CBL	CABT	CAF
4.098	-6.016	-0.0013	0.01320	0.04920	0.3470	-0.3220	0.0010	0.1380	0.3540
4.087	-3.965	0.0020	0.01130	0.04740	0.02810	-0.02810	0.00038	0.1410	0.3330
4.063	2.45	0.00260	0.0790	0.4330	0.1100	-0.1790	0.00070	0.1300	0.3030
4.011	4.404	0.00350	0.0410	0.3760	-0.00520	-0.0710	0.0075	0.1100	0.2660
4.011	6.496	0.00370	0.00360	0.3640	-0.00470	-0.1060	0.0083	0.0960	0.2680
	GRADIENT	0.00039	-0.00086	-0.00117	-0.00398	0.00251	0.0004	-0.00037	-0.00080

RUN NO. 128/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAL	BETAL	CNF	CLMF	CA	CY	CYNF	CBL	CABT	CAF
6.272	-3.908	0.01770	0.0450	0.4900	0.1720	-0.02160	0.00374	0.1390	0.3510
6.268	-1.816	0.01710	0.0430	0.4690	0.0890	-0.01640	0.00361	0.1380	0.3310
6.260	2.74	0.01460	0.0490	0.4410	-0.00180	-0.00960	0.00304	0.1340	0.3070
6.239	2.375	0.01350	0.0420	0.4050	-0.01200	-0.00310	0.00271	0.1250	0.2800
6.214	4.432	0.01050	0.0080	0.3770	-0.01540	0.00090	0.00216	0.1050	0.2720
	GRADIENT	-0.00066	0.00002	-0.00139	-0.00413	0.00262	-0.00019	-0.00039	-0.00100

(RETL37) (03 OCT 75)

IAB18 - FORCE SOURCE DATA TABULATION
ANES97-019(IAB1) LVAP L-SRB - ALL ML SEALED

DATE 21 OCT 75

REFERENCE DATA

SREF = 2000.0000 SQ.FT. XPRP = 976.0000 IN. XT
LINEF = 1297.0000 IN. YPRP = .0000 IN. YT
SREF = 1297.0000 IN. ZPRP = 400.0000 IN. ZT
SCALE = .0300

ELV-IB =
RUDDER =
MACH =

ELV-OB =
SPOBRK =
RN/L =

PARAMETRIC DATA

RUN NO. 129/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	CNF	CLMF	CA	CY	CYNF	CBL	CABT	CAF
-6.961	-4.240	-10192	.04630	.04160	-.01630	.01260	-.01956	.01430	.02730
-6.948	-2.144	-.08940	.03540	.03990	-.02840	.02100	-.01867	.01390	.02600
-6.937	-.026	-.06630	.02100	.03680	-.03570	.02480	-.01281	.01320	.02360
-6.910	2.116	-.04980	.00990	.03630	-.04190	.02510	-.00974	.01360	.02270
-6.886	4.215	-.03240	-.00180	.03390	-.04480	.02370	-.00632	.01290	.02100
	GRADIENT	.00829	-.00575	-.00090	-.00333	.00124	-.00158	-.00015	-.00075

RUN NO. 130/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	CNF	CLMF	CA	CY	CYNF	CBL	CABT	CAF
-4.755	-6.330	-.08930	.04520	.04350	.00720	-.00260	-.01709	.01240	.03110
-4.756	-4.272	-.07730	.03640	.04140	-.00230	.00320	-.01476	.01260	.02880
-4.728	-.049	-.04200	.01430	.03680	-.01790	.01160	-.00887	.01190	.02490
-4.673	4.188	-.01880	-.00350	.03350	-.02370	.00990	-.00366	.01100	.02250
-4.651	6.272	-.00790	-.01030	.02950	-.02500	.00900	-.00155	.00840	.02110
	GRADIENT	.00692	-.00472	-.00093	-.00253	.00079	-.00131	-.00019	-.00074

RUN NO. 131/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	CNF	CLMF	CA	CY	CYNF	CBL	CABT	CAF
-2.543	-6.316	-.06180	.03450	.04500	.02070	-.01340	-.01177	.01190	.03310
-2.538	-2.155	-.04060	.01870	.04030	.00680	-.00530	-.00778	.01180	.02850
-2.521	2.069	-.02130	.00520	.03660	-.00170	-.00310	-.00413	.01130	.02530
-2.483	6.230	-.00400	-.00650	.03080	-.00940	-.00180	-.00075	.00810	.02270
	GRADIENT	.00457	-.00320	-.00088	-.00201	.00052	-.00087	-.00012	-.00076

RUN NO. 132/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	CNF	CLMF	CA	CY	CYNF	CBL	CABT	CAF
-3.347	-6.285	-.04170	.02880	.04730	.03570	-.02690	-.00781	.01310	.03420
-3.350	-4.240	-.03340	.02240	.04520	.02910	-.02280	-.00620	.01350	.03170
-3.348	-.048	-.01970	.01210	.03680	.01530	-.01450	-.00371	.01140	.02740
-3.344	4.147	-.00790	.00300	.03460	.00380	-.00990	-.00145	.01020	.02440
-3.324	6.220	-.00160	-.00180	.03140	-.00170	-.00790	-.00022	.00830	.02310
	GRADIENT	.00304	-.00231	-.00126	-.00302	.00154	-.00057	-.00039	-.00087

REFERENCE DATA

SREF = 2000.0000 SO.FT. XTRP = 976.0000 IN. XT

LINEF = 1297.0000 IN. YTRP = .0000 IN. YT

REF = 1297.0000 IN. ZTRP = 400.0000 IN. ZT

SCALE = .0300

PARAMETRIC DATA									
ELV-18 =		8.000		ELV-08 =		-4.000			
RUDER =		.000		SPOBRK =		.000			
MACH =		2.200		RN/L =		2.500			
PARAMETRIC DATA									
ALPHAL	BETAL	CNF	CLMF	CA	CY	CYNF	CBL	CABT	CAF
1.631	-6.243	-.02270	.02350	.04790	.04140	-.03410	-.00407	.01290	.03500
1.806	-2.098	-.01140	.01340	.04340	.02390	.02260	-.00190	.01340	.03000
1.795	2.113	-.00340	.00750	.03830	.00740	-.01350	-.00089	.01170	.02660
1.768	6.262	.00230	.00040	.03160	-.00450	-.00850	.00049	.00850	.02310
GRADIENT	.00142	-.00140	-.00140	-.00121	-.00392	.00216	.00024	-.00040	-.00081
PARAMETRIC DATA									
ALPHAL	BETAL	CNF	CLMF	CA	CY	CYNF	CBL	CABT	CAF
4.030	-6.178	-.00310	.01580	.04850	.03470	-.03260	-.00020	.01290	.03560
4.022	-4.131	-.00040	.01290	.04640	.02600	-.02700	.00025	.01300	.03340
3.992	.053	.00250	.00860	.04150	.01060	-.01740	.00077	.01250	.02900
3.968	4.207	.00530	.00410	.03610	-.00630	-.00680	.00115	.01090	.02520
3.981	6.281	.00700	.00210	.03180	-.01120	-.00450	.00140	.00840	.02340
GRADIENT	.00068	-.00106	-.00124	-.00387	.00242	.00011	.00011	-.00025	-.00098
PARAMETRIC DATA									
ALPHAL	BETAL	CNF	CLMF	CA	CY	CYNF	CBL	CABT	CAF
6.213	-4.098	.01850	.00470	.04700	.01570	-.01970	.00395	.01270	.03430
6.203	-2.002	.01830	.00420	.04480	.00500	-.01380	.00387	.01260	.03220
6.180	.078	.01550	.00400	.04200	-.00280	-.00820	.00347	.01240	.02960
6.166	2.187	.01510	.00360	.03940	-.01180	-.00290	.00313	.01160	.02780
6.152	4.239	.01300	.00400	.03640	-.01740	-.00020	.00262	.01030	.02610
GRADIENT	-.00068	-.00010	-.00127	-.00403	.00239	.00016	.00016	-.00028	-.00100

(RETLCB) (03 OCT 75)

1A818 - FORCE SOURCE DATA TABULATION
A#E597-01911AF11 LVAP L-SRB - ALL HL SEALED

DATE 21 OCT 75

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XREF = 976.0000 IN. XT
LREF = 1297.0000 IN. YREF = .0000 IN. YT
BREF = 1297.0000 IN. ZREF = 400.0000 IN. ZT
SCALE = .0300

ELV-IB =
RUDDER =
MACH =

ELV-OB = -4.000
SPOBRK = .000
RN/L = 2.500

PARAMETRIC DATA

GRADIENT INTERVAL = -5.00/ 5.00

RUN NO. 136/ 0 RN/L = 2.53
ALPHAL -6.827
BETAL -3.877
CLMF -0.9150
CNF -0.7620
CA -0.3710
CY -0.01520
CYNF -0.01050
CBL -0.1764
CAF .02520
CABT .01190
CABT .01100
CABT .01060
CABT .01070
CABT .00980
CABT .00021
CABT .00062

GRADIENT INTERVAL = -5.00/ 5.00

RUN NO. 137/ 0 RN/L = 2.53
ALPHAL -4.650
BETAL -5.955
CLMF -0.0810
CNF -0.6830
CA -0.4010
CY -0.00590
CYNF -0.00270
CBL -0.1534
CAF .02920
CABT .01090
CABT .01090
CABT .01000
CABT .00830
CABT .00760
CABT .00031

GRADIENT INTERVAL = -5.00/ 5.00

RUN NO. 138/ 0 RN/L = 2.53
ALPHAL -2.473
BETAL -5.941
CLMF -0.5670
CNF -0.3610
CA -0.4210
CY -0.01980
CYNF -0.01400
CBL -0.1080
CAF .03110
CABT .01100
CABT .01000
CABT .00950
CABT .00790
CABT .00012

GRADIENT INTERVAL = -5.00/ 5.00

RUN NO. 139/ 0 RN/L = 2.53
ALPHAL -2.304
BETAL -5.915
CLMF -0.3770
CNF -0.3000
CA -0.4380
CY -0.0210
CYNF -0.02560
CBL -0.0706
CAF .03240
CABT .01140
CABT .01170
CABT .00980
CABT .00840
CABT .00790
CABT .00040

DATE 21 OCT 75

IAB1B - FORCE SOURCE DATA TABULATION

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(RETL38) (03 OCT 75)

AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

ELV-1B = 8.000 ELV-OB = -4.000
 RUDDER = .000 SPDBRK = .000
 MACH = 2.500 RN/L = 2.500

RUN NO. 140/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETAL	CNF	CLMF	CA	CY	CYNF	CBL	CABT	CAF
1.860	-5.866	-0.1950	.02180	.04440	.03560	-.03100	-.00343	.01120	.03320
1.820	-1.738	-0.0950	.01150	.03930	.02010	-.02090	-.00157	.01100	.02830
1.817	2.442	-0.00360	.00620	.03440	.00470	-.01180	-.00059	.00980	.02460
1.813	6.562	-0.00330	-.00010	.02850	-.00520	-.00780	.00067	.00770	.02080
	GRADIENT	.00141	-.00127	-.00117	-.00368	.00218	.00023	-.00029	-.00089

RUN NO. 141/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETAL	CNF	CLMF	CA	CY	CYNF	CBL	CABT	CAF
3.403	-5.839	-0.0030	.01350	.04520	.02680	-.02570	.00028	.01070	.03450
3.376	-3.862	.00280	.00940	.04210	.01980	-.02150	.00088	.01090	.03120
3.362	3.379	.00350	.00740	.03770	.00600	-.01380	.00095	.01050	.02720
3.344	3.913	.00620	.00370	.03160	-.00790	-.00560	.00129	.00870	.02290
3.340	6.584	.00820	.00160	.02850	-.01190	-.00380	.00167	.00740	.02110
	GRADIENT	.00043	-.00072	-.00134	-.00355	.00204	.00005	-.00028	-.00106

RUN NO. 142/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETAL	CNF	CLMF	CA	CY	CYNF	CBL	CABT	CAF
6.181	-3.873	.02050	.00260	.04310	.01030	-.01500	.00432	.01070	.03240
6.170	-1.684	.01940	.00220	.04070	.00230	-.01030	.00409	.01100	.02970
6.163	.403	.01680	.00320	.03810	-.00460	-.00680	.00349	.01040	.02770
6.147	2.505	.01510	.00300	.03620	-.01320	-.00170	.00313	.00980	.02640
6.143	3.925	.01440	.00290	.03190	-.01850	.00050	.00286	.00840	.02350
	GRADIENT	-.00084	.00007	-.00135	-.00371	.00201	-.00020	-.00028	-.00106

DATE 21 OCT 75

1AB1B - FORCE SOURCE DATA TABULATION

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AMES97-019(1AB1) LVAP L-SRB - ALL HL SEALED

(RETL39) (03 OCT 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

ELV-1B = .000 ELV-08 = .000
 RUDDER = .000 SPOBRK = .000
 MACH = 1.550 RN/L = 2.500

RUN NO. 143/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAL -6.974
 BETAL .604
 GRADIENT .00970
 CLMF .00000
 CNF .00000
 CA .04250
 CY -.03500
 CYNF .01780
 CBL -.01099
 CABT .00000
 CAF .02870
 .00000

RUN NO. 144/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAL -4.819
 BETAL -3.694
 GRADIENT .543
 CLMF -.07130
 CNF -.02630
 CA .04700
 CY -.00870
 CYNF .00700
 CBL -.01374
 CABT .01460
 CAF .03240
 .01200
 .03030
 .01380
 .03000
 -.00012
 -.00031

RUN NO. 145/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAL -3.315
 BETAL -5.807
 GRADIENT .465
 CLMF -.04230
 CNF -.03340
 CA .05270
 CY .03020
 CYNF -.01760
 CBL -.00814
 CABT .01630
 CAF .03640
 .03490
 .03270
 .01040
 .01200
 .03042
 .02800
 .00990
 -.00027
 -.00057

RUN NO. 146/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAL 3.490
 BETAL -3.66
 GRADIENT .582
 CLMF .01130
 CNF -.00200
 CA .05130
 CY .02340
 CYNF -.02140
 CBL -.00027
 CABT .01630
 CAF .03500
 .03320
 .03190
 -.00019
 -.00040

RUN NO. 147/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAL 6.227
 BETAL .654
 GRADIENT .01000
 CLMF .00500
 CNF .00000
 CA .04690
 CY -.00080
 CYNF -.01050
 CBL .00206
 CABT .01300
 CAF .03390
 .00000

DATE 21 OCT 75

IA818 - FORCE SOURCE DATA TABULATION

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AMES37-019(IA81) LVAP L-SRB - ALL HL SEALED

(RETL40) (03 OCT 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT ELV-18 = .000
LREF = 1297.0000 IN. YMRP = .0000 IN. YT RUDDER = .000
BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT MACH = 2.000
SCALE = .0300

PARAMETRIC DATA

RUN NO. 148/ 0 RN/L = 2.55 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAL -6.970
BETAL .195
GRADIENT .00000
CNF -.06060
CLMF .01390
CA .03900
CY -.03990
CYNF .02590
CBL -.01181
CAF .01450
CABT .00000
ELV-OB = .000
SPOBRK = .000
RN/L = 2.000

RUN NO. 149/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAL -4.660
BETAL -4.147
GRADIENT 3.759
CNF -.07140
CLMF .00820
CA .04270
CY -.00750
CYNF .00790
CBL -.01378
CAF .02810
CABT .01460
ELV-OB = .000
SPOBRK = .000
RN/L = 2.000

RUN NO. 150/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAL -3.337
BETAL -6.136
GRADIENT 6.452
CNF -.03790
CLMF .02310
CA .04760
CY .03160
CYNF -.02200
CBL -.00714
CAF .03370
CABT .01390
ELV-OB = .000
SPOBRK = .000
RN/L = 2.000

RUN NO. 151/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAL 3.428
BETAL -3.962
GRADIENT 3.790
CNF .00220
CLMF .00890
CA .04680
CY .02790
CYNF -.02800
CBL .00065
CAF .03330
CABT .01350
ELV-OB = .000
SPOBRK = .000
RN/L = 2.000

RUN NO. 152/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAL 6.185
BETAL .287
GRADIENT .00000
CNF .01580
CLMF .00310
CA .04310
CY .00060
CYNF -.01150
CBL .00320
CAF .03040
CABT .01270
ELV-OB = .000
SPOBRK = .000
RN/L = 2.000

(RETL41) (03 OCT 75)

1A81B - FORCE SOURCE DATA TABULATION
AMES97-019(1A81) LVAP L-SRB - ALL HL SEALED

DATE 21 OCT 75

REFERENCE DATA
SREF = 2690.0000 SQ.FT.
LREF = 1297.0000 IN.
BREF = 1297.0000 IN.
SCALE = .0300

YMRP = 976.0000 IN. XT
YMRP = .0000 IN. YT
ZMRP = 400.0000 IN. ZT

ELV-1B =
RUDDER =
MACH =

PARAMETRIC DATA
ELV-08 = .000
SPDBRK = .000
RN/L = 2.200

RUN NO. 153/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

BETAL
ALPHA -6.967
GRADIENT
CA .03570
CY -.03690
CYNF .02520
CBL -.01250
CAF .02300
CABT .01270
CABT .00000

RUN NO. 154/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

BETAL
ALPHA -4.834
GRADIENT
CA .04000
CY -.00110
CYNF .00210
CBL -.01378
CAF .02710
CABT .01250
CABT .00000

RUN NO. 155/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

BETAL
ALPHA -4.265
GRADIENT
CA .04630
CY .03560
CYNF -.02710
CBL -.00723
CAF .03290
CABT .01340
CABT .00000

RUN NO. 156/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

BETAL
ALPHA -4.139
GRADIENT
CA .04560
CY .02520
CYNF -.02590
CBL .00058
CAF .03300
CABT .01260
CABT .00000

RUN NO. 157/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

BETAL
ALPHA -4.070
GRADIENT
CA .04110
CY .00140
CYNF -.01040
CBL .00366
CAF .02930
CABT .01180
CABT .00000

FORCE SOURCE DATA TABULATION

WCC07-0191181) LVP PVA 7 (18V1) 610-2633 L-SRB - ALL HL SEALED

REFERENCE DATA

SCALE
BREF
LREF
SPREF

XMRP	=	976.0000	IN.	XT
YMRP	=	.0000	IN.	YT
ZMRP	=	400.0000	IN.	ZT

RUN NO.

ALPHAL
-6.838

CNF
- .0592
.0000

CLMF
.01700
.00000

GRADIENT INTERVAL = -5.00/ 5.00

CABT	CAF
.01010	.021
.00000	.000

CAF
02190
00000

ELV-18
RUDDER
MACH

ELV-08	-	.000
SPOBRK	-	.000
GN/L	-	2.500

PARAMETRIC DATA

ALPHAL
-4.683
-4.678
-4.646

910
287

CLP
03030
01000
00380

1000

CABT	CAF
.01040	.02
.00980	.02

CAF
.02550
.02240

-5.00/ 5.00

CABT	CAF
.01090	.03
.01090	.02

CAF
.03180
.02910

GRADIENTS: INCREASE

.01090
.01090
.00930
.03
.02
.02
.0

03180
01620
06420
02490

Interval	-5.00/	5.00
Interval	-5.00/	5.00

CABT	.00980	.00980
CABT	.00980	.00980

CAF
.03090
.02720

GRADIENT: INCREASE

00980
00950
00780

.03090
.02720
.02300
.00105

GRADIENT INTERVAL = -3:00, 3:00

LAB1
00920
00000

0276
0000

CY
CYNF
CBL 0075

000000.

0000.

REFERENCE DATA
 SREF = 2690.0000 SQ. FT. XMRP = 976.0000 IN. XT
 LRFP = 1297.0000 IN. YMRP = .0000 IN. YT
 BRFP = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

ELV-1B = 8.000 ELV-09 = .000
 RUDDER = .000 SPOBRK = .000
 MACH = 1.550 RN/L = 2.500

RUN NO. 163/ 0 RN/L = 2.54 GRADIENT INTERVAL = -5.00/ 5.00
 ALPHAL BETAL CNF CLMF CA CY CYNF CBL CAF
 -6.934 .614 -.05870 .01290 .04400 -.03380 .01660 -.01137 .01370 .03030
 GRADIENT IT .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000

RUN NO. 164/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00
 ALPHAL BETAL CNF CLMF CA CY CYNF CBL CAF
 -4.778 -3.694 -.07440 .03030 .04840 -.00710 .00580 -.01434 .01460 .03380
 -4.694 .550 -.04270 .01140 .04370 -.00940 .00150 -.00819 .01240 .03130
 -4.602 4.130 -.01850 -.00240 .04390 -.00810 -.00390 -.00345 .01310 .03080
 GRADIENT .00715 -.00419 -.00059 -.00014 -.00123 .00139 -.00020 -.00039 .00000 .00000

RUN NO. 165/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00
 ALPHAL BETAL CNF CLMF CA CY CYNF CBL CAF
 -2.473 .511 -.03210 .01270 .04430 .01140 -.01160 -.00610 .01150 .03280
 GRADIENT .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000

RUN NO. 166/ 0 RN/L = 2.51 GRADIENT INTERVAL = -5.00/ 5.00
 ALPHAL BETAL CNF CLMF CA CY CYNF CBL CAF
 -1.287 -5.804 -.04510 .02880 .05380 .03080 -.01800 -.00862 .01570 .03810
 -1.275 -3.766 -.03640 .02300 .04950 .02890 -.01800 -.00686 .01390 .03560
 -1.246 -1.657 -.03080 .02050 .04640 .02940 -.01990 -.00580 .01210 .03430
 -1.238 .477 -.02280 .01470 .04340 .02730 -.02250 -.00431 .00990 .03350
 -1.219 2.599 -.01690 .01060 .04360 .02550 -.02360 -.00313 .01150 .03210
 -1.205 4.036 -.01040 .00620 .04280 .01880 -.01960 -.00182 .01190 .03090
 -1.198 6.721 -.00390 .00120 .03800 .00950 -.01280 -.00061 .00930 .02870
 GRADIENT .00330 -.00218 -.00083 -.00117 -.00039 .00064 -.00025 -.00058 .00000 .00000

RUN NO. 167/ 0 RN/L = 2.51 GRADIENT INTERVAL = -5.00/ 5.00
 ALPHAL BETAL CNF CLMF CA CY CYNF CBL CAF
 1.951 .529 -.01380 .01500 .04340 .02250 -.02230 -.00253 .01010 .03330
 GRADIENT .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000

DATE 21 OCT 75

1A81B - FORCE SOURCE DATA TABULATION

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(RETL44) (03 OCT 75)

REFERENCE DATA

[illegible]

PARAMETRIC DATA

	RUN NO.	173/ 0	RN/L =	2.52	GRADIENT INTERVAL =	-5.00/	5.00
BETAL							
-6.123	CNF	0.4150	CLMF	0.8430	CY	0.3260	CYNF
-330		-0.4150		0.2700		0.0270	-0.00783
-324		-0.3330		0.2120		0.0280	-0.00626
-316		-0.2680		0.1680		0.0290	-0.00505
-290		-0.2060		0.1330		0.0190	-0.00393
-292		-0.1320		0.0720		0.0990	-0.00250
-286		-0.0680		0.0240		0.0750	-0.00123
-276		-0.0190		0.0120		0.0750	-0.00023
GRADIENT		0.0035		-0.00237		-0.00265	-0.00063

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. YT
 SCALE = .0300

PARAMETRIC DATA

ELV-IB = 8.000
 RUDDER = .000
 MACH = 2.200
 ELV-OB = .000
 SPDBRK = .000
 RN/L = 2.500

RUN NO. 177/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00
 BETAL -0.020
 GRADIENT .00000
 CNF -0.06720
 CLMF .02180
 CA .03700
 CY -0.03560
 CYNF .02420
 CBL -0.01296
 CBF .00000

RUN NO. 178/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00
 BETAL -4.262
 GRADIENT 3.556
 CNF -0.07540
 CLMF .03570
 CA .04110
 CY -0.00070
 CYNF .00200
 CBL -0.01443
 CBF .02840

RUN NO. 179/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00
 BETAL -0.061
 GRADIENT .00000
 CNF -0.03130
 CLMF .01200
 CA .03800
 CY .00160
 CYNF -0.00310
 CBL -0.00599
 CBF .00000

RUN NO. 180/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00
 BETAL -6.294
 GRADIENT 6.186
 CNF -0.04170
 CLMF .02930
 CA .04720
 CY .03620
 CYNF -0.02760
 CBL -0.00781
 CBF .03400

RUN NO. 181/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00
 BETAL .020
 GRADIENT .00000
 CNF -0.00680
 CLMF .01090
 CA .04020
 CY .01480
 CYNF -0.01770
 CBL -0.00150
 CBF .00000

CABT .01260
 CAF .02440
 .00000

CABT .01270
 CAF .02840
 .01190
 .02510
 .01120
 .02230
 -.00019
 -.00078

CABT .01110
 CAF .02690
 .00000

CABT .01320
 CAF .03400
 .01330
 .03170
 .02960
 .02770
 .01120
 .01090
 .01010
 .02420
 .02330
 -.00039

CABT .01240
 CAF .02780
 .00000

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IAB18 - FORCE SOURCE DATA TABULATION

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AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED

(RETL45) (03 OCT 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
 SCALE = .0300

RUN NO. 182/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAL	BETAL	CNF	CLMF	CA	CY	CYNF	CBL	CABT	CAF
3.403	-4.182	-.00070	.01320	.04620	.02580	-.02690	.00023	.01260	.03340
3.371	.058	.00210	.00890	.04140	.00980	-.01700	.00061	.01210	.02930
3.337	3.606	.00410	.00470	.03570	-.00640	-.00680	.00088	.01050	.02520
	GRADIENT	.00062	-.00109	-.00134	-.00412	.00257	.00008	-.00029	-.00105

ELV-18 =
 RUDDER =
 MACH =

ELV-08 =
 SPOBRK =
 RN/L =

RUN NO. 183/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAL	BETAL	CNF	CLMF	CA	CY	CYNF	CBL	CABT	CAF
6.118	.080	.01510	.00480	.04180	-.00290	-.00830	.00323	.01190	.02990
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
 SCALE = .0300

RUN NO. 184/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAL	BETAL	CNF	CLMF	CA	CY	CYNF	CBL	CABT	CAF
-6.914	.622	-.05930	.01360	.04460	-.03430	.01720	-.01151	.01410	.03050
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

ELV-18 =
 RUDDER =
 MACH =

ELV-08 =
 SPOBRK =
 RN/L =

RUN NO. 185/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAL	BETAL	CNF	CLMF	CA	CY	CYNF	CBL	CABT	CAF
-4.818	-3.740	-.07450	.03080	.04860	-.00760	.00650	-.01438	.01490	.03370
-4.752	.554	-.04450	.01230	.04400	-.00910	.00170	-.00859	.01260	.03140
-4.647	4.117	-.01890	-.00190	.04400	-.00810	-.00360	-.00350	.01350	.03050
	GRADIENT	.00707	-.00417	-.00050	-.00007	-.00128	.00138	-.00019	-.00041

ELV-18 =
 RUDDER =
 MACH =

ELV-08 =
 SPOBRK =
 RN/L =

RUN NO. 186/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAL	BETAL	CNF	CLMF	CA	CY	CYNF	CBL	CABT	CAF
-2.462	.515	-.03170	.01250	.04460	.01150	-.01130	-.00604	.01190	.03270
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

ELV-18 =
 RUDDER =
 MACH =

ELV-08 =
 SPOBRK =
 RN/L =

AMES97-019(IAB1) LVAP L-SRB - ALL HL SEALED

(RETL46) (03 OCT 75)

PARAMETRIC DATA

CABT .01410
 CAF .03050
 RN/L .00000

ELV-08 =
 SPOBRK =
 RN/L =

(RETL48) (03 OCT 75)

Q810 - FORCE SOURCE DATA TABULATION

DATE 21 OCT 75

PARAMETRIC DATA

0.000	ELV-08	=	-4.000
.000	SPOBRK	=	.000
1.550	RN/L	=	2.500

REFERENCE DATA

REF	=	2690.0000	50. FT.	XPRP	=	976.0000	IN.	Y1
REF	=	1297.0000	IN.	YPRP	=	.0000	IN.	Y1
REF	=	1297.0000	IN.	ZPRP	=	400.0000	IN.	Z1
SCALE	=	.0300						

[illegible]

RUN NO. 188/ 0		RN/L = 2.53		GRADIENT INTERVAL = -5.00/ 5.00		
	CNF	CLMF	CA	CY	CYNF	CBL
BETAL	-.01450	.01550	.04350	.02300	-.02230	-.00260
ALPHAL	.537	.00000	.00000	.00000	.00000	.00000
1.955	.00000	.00000	.00000	.00000	.00000	.00000
GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000

	ALPHAL	BETAL	CLMF	CA	CY	CYNF	CBL
GRADIENT	3.447	4.137	-.00130	-.00074	-.00239	.00031	.00012
GRADIENT	3.510	4.137	.00460	.04650	.00390	-.01430	.00031
GRADIENT	3.532	4.137	.01240	.04590	.01370	-.01940	.00045
GRADIENT	3.655	4.137	-.00350	.04590	.01370	-.01940	.00045
GRADIENT	3.655	4.137	-.00480	.05210	.02260	-.02150	.00065

	RUN NO.	190/ 0	RM/L =	2.52	GRADIENT INTERVAL =	-5.00/ 5.00/	
ALPHAL	BETAL	CNF	CLMF	CA	CY	CYNF	CBL
6.302	.562	.00840	.00730	.04650	.00110	-.01210	.001840
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.000000

CAF	CAF
.01580	.03780
.01420	.03530
.01240	.03420
.01050	.03290
.01190	.03220
.01210	.03090
.00970	.02830
-.00025	-.00054

CABT	CAF
.01050	.03300
.00000	.00000

CABT	CAF
.01610	.03600
.01250	.03340
.01420	.03230
-.00026	-.00048

CABT	CAF
.01220	.03430
.00000	.00000

DATE 21 OCT 75

1A018 - FORCE SOURCE DATA TABULATION

PAGE 45

AMES97-019(1A81) LVAP L-SRB - ALL ML SEALED

(RETL47) : 03 OCT 75)

REFERENCE DATA

SREF = 2000.0000 SQ.FT. XREF = 976.0000 IN. XT
 LREF = 1297.0000 IN. YREF = .0000 IN. YT
 BREF = 1297.0000 IN. ZREF = 400.0000 IN. ZT
 SCALE = .0300

RUN NO. 196/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAL	BETAL	CNF	CLMF	CA	CY	CYNF	CBL	CABT	CAF
3.424	-3.979	.00000	.01110	.04780	.02900	-.02980	.00030	.01380	.03400
3.440	.247	.00180	.00850	.04410	.01350	-.01930	.00060	.01300	.03110
3.405	3.705	.00470	.00400	.03720	-.00390	-.03770	.00102	.01060	.02660
	GRADIENT	.00060	-.00091	-.00136	-.00426	.00286	.00009	-.00041	-.00095

RUN NO. 197/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAL	BETAL	CNF	CLMF	CA	CY	CYNF	CBL	CABT	CAF
6.270	.250	.01410	.00540	.04430	.00030	-.01090	.00295	.01300	.03130
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

REFERENCE DATA

SREF = 2000.0000 SQ.FT. XREF = 976.0000 IN. XT
 LREF = 1297.0000 IN. YREF = .0000 IN. YT
 BREF = 1297.0000 IN. ZREF = 400.0000 IN. ZT
 SCALE = .0300

RUN NO. 100/ 0 RN/L = 3.03 GRADIENT INTERVAL = -5.00/ 5.00

BETAT	ALPHAT	CNF	CLMF	CA	CY	CYNF	CBL	CABT
.255	-7.065	-.23130	.04870	.13060	-.00470	-.00180	.00020	.02860
.242	-4.674	-.17580	.04130	.13230	-.00680	-.00070	.00010	.03040
.208	-.420	-.08010	.02980	.13130	-.00660	-.00060	.00010	.02940
.208	4.037	.00420	.02830	.12680	-.00370	-.00170	.00010	.02810
.224	9.550	.03210	.02630	.12720	-.00590	.00040	.00020	.02620
.229	10.744	.14440	.01460	.12590	-.00270	-.00120	.00090	.02590
	GRADIENT	.02065	-.00146	-.00039	.00035	-.00011	-.00000	-.00026

AMES97-019(1A81) LVAP TANK - ALL ML SEALED

(RETT30) : 03 OCT 75)

PARAMETRIC DATA

ELV-18 =
 RUDDER =
 MACH =

ELV-18 =
 RUDDER =
 MACH =

(RETT31) (03 OCT 75)

IA818 - FORCE SOURCE DATA TABULATION
AMES97-019(IA81) LVAP TANK - ALL HL SEALED

CATE 21 OCT 75

REFERENCE DATA

SREF = 2690.0000 SO.FT. XPRP = 976.0000 IN. XT
LREF = 1297.0000 IN. YPRP = .0000 IN. YT
BREF = 1297.0000 IN. ZPRP = 400.0000 IN. ZT
SCALE = .0300

ELV-18 =
RUDDER =
MACH =

ELV-09 = .000
SPOBRK = 55.000
RN/L = 3.000

PARAMETRIC DATA

RUN NO. 101/ 0 RN/L = 3.03 GRADIENT INTERVAL = -5.00/ 5.00

BETAT	ALPHAT	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
-.136	-7.200	-.23580	.10440	.04500	.13970	.00890	-.00190	.00030	.03530
-.195	-4.949	-.18380	.10430	.03950	.14000	.00850	-.00190	.00020	.03570
-.190	-.466	-.08720	.10470	.03310	.13910	.00790	-.00170	.00020	.03440
-.187	4.055	-.06600	.10330	.03640	.13520	.01000	-.00250	.00020	.03290
-.160	8.627	.06620	.10290	.03410	.13520	.01070	-.00260	.00050	.03230
-.154	10.844	.14180	.10120	.02250	.13270	.01170	-.00200	.00130	.03150
	GRADIENT	.01974	-.00011	-.00034	-.00042	.00017	-.00007	-.00000	-.00031

(RETT32) (03 OCT 75)

AMES97-019(IA81) LVAP TANK - ALL HL SEALED

REFERENCE DATA

SREF = 2690.0000 SO.FT. XPRP = 976.0000 IN. XT
LREF = 1297.0000 IN. YPRP = .0000 IN. YT
BREF = 1297.0000 IN. ZPRP = 400.0000 IN. ZT
SCALE = .0300

ELV-18 =
RUDDER =
MACH =

ELV-08 = .000
SPOBRK = 55.000
RN/L = 3.000

PARAMETRIC DATA

RUN NO. 102/ 0 RN/L = 3.03 GRADIENT INTERVAL = -5.00/ 5.00

BETAT	ALPHAT	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
.069	-7.249	-.23780	.10520	.03830	.14380	.00250	-.00010	.00030	.03860
.047	-4.976	-.18330	.10530	.03290	.14340	.00170	-.00020	.00020	.03810
.011	-.435	-.08750	.10620	.03090	.14210	.00080	-.00040	.00020	.03590
.010	4.142	-.01120	.10380	.04010	.13850	.00370	-.00030	.00010	.03470
.040	8.753	.07090	.10380	.04580	.13770	.00820	-.00320	.00070	.03390
.042	10.993	.13540	.10140	.03610	.13500	.00830	-.00130	.00160	.03360
	GRADIENT	.01887	-.00016	.00079	-.00054	.00022	-.00008	-.00001	-.00037

(RETT33) (03 OCT 75)

DATE 21 OCT 75 IAB18 - FORCE SOURCE DATA TABULATION
AMES97-019(IAB1) LVAP TANK - ALL HL SEALED

PARAMETRIC DATA

ELV-18 = .000 ELV-08 = .000
RUDDER = .000 SPDBRK = 55.000
MACH = 1.550 RN/L = 3.000

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 576.0000 IN. XT
LREF = 1297.0000 IN. YMRP = .0000 IN. YT
BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
SCALE = .0300

RUN NO. 103/ 0 RN/L = 3.01 GRADIENT INTERVAL = -5.00/ 5.00

BETAT	ALPHAT	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
.439	-7.312	-23700	.10700	.03090	.15240	.00000	-.00190	.00070	.04540
.415	-5.031	-17560	.10740	.02000	.15210	.00240	-.00380	.00020	.04470
.367	-.398	-.09060	.10850	.03080	.15190	-.00060	-.00260	.00010	.04340
.300	4.237	-.03300	.10720	.05470	.14360	.00110	-.00390	.00010	.03640
.423	8.870	.04400	.10600	.06540	.14260	.00240	-.00450	.00090	.03660
		.01243	-.00028	.00516	-.00179	.00037	-.00028	.00000	-.00151

(RETT34) (03 OCT 75)

AMES97-019(IAB1) LVAP TANK - ALL HL SEALED

PARAMETRIC DATA

ELV-18 = 8.000 ELV-08 = -4.000
RUDDER = .000 SPDBRK = .000
MACH = 1.550 RN/L = 2.500

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT
LREF = 1297.0000 IN. YMRP = .0000 IN. YT
BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
SCALE = .0300

RUN NO. 115/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

BETAT	ALPHAT	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
.416	-7.056	-21380	.11150	.01680	.15370	.00170	-.00360	.00020	.04220
.390	-4.826	-16750	.10890	.01760	.15260	.00400	-.00460	.00020	.04370
.377	-2.586	-12490	.10940	.02190	.15130	.00040	-.00390	.00010	.04190
.361	-.336	-.08760	.10860	.02930	.14950	-.00070	-.00320	.00010	.04090
.360	1.906	-.05520	.10980	.04070	.14950	-.00100	-.00200	.00010	.03970
.375	3.686	-.02910	.10760	.05140	.14340	.00080	-.00400	.00010	.03580
.385	6.358	-.00140	.10870	.06250	.14460	.00170	-.00410	.00010	.03590
		.01613	-.00009	.00399	-.00092	-.00038	.00015	-.00001	-.00082

(RETT35) (03 OCT 75)

IAB18 - FORCE SOURCE DATA TABULATION
AMES97-019(IAB1) LVAP TANK - ALL HL SEALED

DATE 21 OCT 75

PARAMETRIC DATA

ELV-1B =
RUDDER =
MACH =
B.000
.000
1.550
ELV-08 =
SPDBRK =
RN/L =
-4.000
.000
2.500

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT
LREF = 1297.0000 IN. YMRP = .0000 IN. YT
BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
SCALE = .0300

RUN NO. 112/ 0 RN/L = 2.54 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT	BETAT	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
-7.111	-3.952	-23910	10860	.03060	.15050	.06110	-.00310	.00070	.04190
-7.101	-1.755	-22650	10850	.02280	.15220	.03060	-.00300	.00040	.04370
-6.901	.386	-21740	10760	.01650	.15300	.01620	-.00850	.00020	.04540
-7.066	2.618	-21080	10830	.01540	.15280	-.03180	-.00170	.00000	.04450
-6.843	4.769	-19980	10820	.01160	.15270	-.05540	-.00610	-.00020	.04450
	GRADIENT	.00432	-.00005	-.00207	.00023	-.01355	-.00021	-.00010	.00027

RUN NO. 116/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT	BETAT	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
-4.839	-6.115	-20140	11050	.03790	.15350	.08330	.00240	.00090	.04300
-4.830	-3.981	-18790	11010	.02980	.15070	.05890	-.00180	.00060	.04060
-4.811	.396	-16790	10910	.01810	.15230	.00400	-.00450	.00020	.04320
-4.748	4.751	-15770	10900	.01690	.15280	-.05170	-.00970	-.00020	.04380
-4.711	6.897	-14940	10970	.01630	.15640	-.08050	-.01000	-.00040	.04670
	GRADIENT	.00346	-.00013	-.00148	.00024	-.01267	-.00090	-.00009	.00037

RUN NO. 117/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT	BETAT	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
-2.566	-6.117	-15510	11030	.04250	.15310	.08110	.00390	.00080	.04280
-2.568	-1.787	-13460	11030	.02850	.15090	.02680	-.00220	.00040	.04060
-2.533	2.578	-12100	11030	.02210	.15030	-.03200	-.00290	.00000	.04000
-2.474	6.886	-10590	11180	.01850	.15560	-.08940	-.00510	-.00130	.04380
	GRADIENT	.00312	.00000	-.00147	-.00014	-.01347	-.00016	-.00009	-.00014

RUN NO. 118/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT	BETAT	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
-2.284	-6.116	-11670	10900	.05220	.15040	.07710	.00460	.00080	.04140
-2.287	-3.985	-10310	11000	.04260	.14860	.05220	.00070	.00050	.03860
-2.278	.369	-08390	11070	.02990	.15180	-.00300	-.00120	.00010	.04110
-2.261	4.707	-08060	11180	.03160	.15070	-.05910	-.00400	-.00090	.03890
-2.240	6.850	-06970	11530	.02650	.15660	-.09530	-.00190	-.00160	.04130
	GRADIENT	.00259	.00021	-.00127	.00024	-.01280	-.00054	-.00017	.00003

REFERENCE DATA									
SREF =	2690.0000	SQ.FT.	XMRP =	976.0000	IN.	XT	ELV-19 =	8.000	ELV-08 =
LREF =	1297.0000	IN.	YMRP =	.0000	IN.	YT	RUDDER =	.000	SPDBRK =
BREF =	1297.0000	IN.	ZMRP =	400.0000	IN.	ZT	MACH =	1.550	RN/L =
SCALE =	.0300								
PARAMETRIC DATA									
GRADIENT INTERVAL = -5.00/ 5.00									
RUN NO.	119/ 0	RN/L =	2.54	CLMF	CA	CY	CYNF	CBL	CABT
BETAT	CNF	CAF		.06250	.14830	.07400	.00660	.00070	.03950
-6.138	-.08560	.10880		.04460	.14810	.02790	-.00330	.00030	.03860
-1.807	-.06040	.10950		.04180	.14530	-.03030	-.00230	-.00010	.03640
2.558	-0.05180	.10890		.03970	.15650	-.10240	.00970	-.00210	.04000
8.833	-.04370	.11650		-.00064	-.00064	-.01333	.00023	-.00009	-.00050
GRADIENT	.00197	-.00014							
GRADIENT INTERVAL = -5.00/ 5.00									
RUN NO.	120/ 0	RN/L =	2.52	CLMF	CA	CY	CYNF	CBL	CABT
BETAT	CNF	CAF		.06790	.14490	.08150	.00400	.00070	.03750
-6.133	-.04900	.10740		.05940	.14260	.06060	-.00400	.00040	.03380
-3.984	-0.03820	.10860		.05310	.14310	.00080	-.00390	.00010	.03610
.380	-0.02990	.10700		.05760	.14350	-.06830	.00150	.00000	.03350
4.718	-0.03040	.11000		.05830	.15010	-.10420	.00700	-.00050	.03740
6.856	-0.02970	.11270		-.00021	.00010	-.01481	.00063	-.00005	-.00003
GRADIENT	.00090	.00014							
GRADIENT INTERVAL = -5.00/ 5.00									
RUN NO.	121/ 0	RN/L =	2.52	CLMF	CA	CY	CYNF	CBL	CABT
BETAT	CNF	CAF		.06610	.14330	.06640	.00670	.00040	.03350
-3.968	-.00470	.10980		.06390	.14250	.03210	-.00520	.00030	.03400
-1.782	-0.00200	.10850		.06390	.14510	-.00090	-.00300	.00020	.03580
6.432	.395	.10930		.06280	.14020	-.03470	.00100	.00000	.03220
6.462	2.582	.10810		.06600	.14300	-.06690	-.00120	-.00020	.03320
4.740	-.00300	.10980		-.00006	-.00013	-.01531	.00070	-.00007	-.00011
GRADIENT	.00036	-.00002							

DATE 21 OCT 75

IAB1B - FORCE SOURCE DATA TABULATION

AMES97-019(IAB1) LVAP TANK - ALL HL SEALED

(RETT36) (03 OCT 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT
LREF = 1297.0000 IN. YMRP = .0000 IN. YT
BREF = 1297.0000 IN. ZMRP = 460.0000 IN. ZT
SCALE = .0300

PARAMETRIC DATA

ELV-1B = 8.000 ELV-0B = -4.000
RUDDER = .000 SPOBRK = .000
MACH = 2.000 RN/L = 2.500

RUN NO. 122/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT	BETAT	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
-7.089	-4.341	-26190	.10660	.05110	.14330	.06870	-.00200	.00070	.03730
-7.083	-2.145	-25100	.10610	.04360	.14270	.03400	.00010	.00050	.03660
-7.064	.056	-24090	.10630	.03780	.14350	.00070	.00050	.00030	.03720
-7.029	2.266	-23180	.10740	.03560	.14390	-.03140	-.00100	.00000	.03650
-6.999	4.437	-22810	.10770	.03610	.14500	-.06600	-.00060	-.00010	.03730
GRADIENT	GRADIENT	.00395	.00016	-.00173	.00015	-.01524	.00008	-.00010	-.00000

RUN NO. 123/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT	BETAT	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
-4.862	-6.520	-22230	.10800	.05530	.14410	.11040	-.00760	.00090	.03610
-4.860	-4.364	-20930	.10680	.04650	.14400	.06950	-.00270	.00050	.03720
-4.829	.037	-18690	.10680	.03370	.14360	-.00030	.00070	.00020	.03680
-4.765	4.424	-17670	.10710	.03300	.14490	-.06910	.00100	-.00020	.03780
-4.745	8.584	-16970	.10590	.03070	.14380	-.10710	.00400	-.00030	.03790
GRADIENT	GRADIENT	.00371	.00003	-.00154	.00010	-.01577	.00042	-.00009	.00007

RUN NO. 124/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT	BETAT	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
-2.625	-6.529	-16620	.10680	.05080	.14270	.11120	-.00910	.00090	.03590
-2.614	-2.169	-14520	.10630	.03790	.14260	.03470	-.00160	.00040	.03630
-2.577	2.232	-13030	.10870	.03040	.14480	-.03470	.00080	.00000	.03610
-2.532	6.557	-12130	.10660	.02860	.14380	-.11180	.00810	-.00060	.03720
GRADIENT	GRADIENT	.00339	.00055	-.00170	.00050	-.01577	.00055	-.00009	-.00005

RUN NO. 125/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT	BETAT	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
-3.387	-6.539	-11490	.10700	.04890	.14130	.10920	-.00820	.00080	.03430
-3.386	-4.384	-10400	.10650	.04190	.14130	.06880	-.00360	.00060	.03480
-3.377	.012	-08890	.10660	.03200	.14130	-.00280	.00100	.00020	.03470
-3.338	4.379	-06300	.10730	.03060	.14350	-.06910	.00240	-.00030	.03620
-3.323	8.529	-07650	.10930	.02740	.14500	-.11910	.01550	-.00110	.03570
GRADIENT	GRADIENT	.00240	.00009	-.00129	.00025	-.01574	.00069	-.00010	.00016

DATE 21 OCT 75

IAB1B - FORCE SOURCE DATA TABULATION

AMES97-019(IAB1) LVAP TANK - ALL HL SEALED

(RETT36) (03 OCT 75)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT
LREF = 1297.0000 IN. YMRP = .0000 IN. YT
BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
SCALE = .0300

PARAMETRIC DATA

ELV-1B =
PUDDER =
MACH =
ELV-08 = -4.000
SPOBRK = .000
RN/L = 2.500

RUN NO. 126/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT	BETAT	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
1.831	-6.517	-.06800	.10560	.04780	.13810	.10410	-.00780	.00070	.03250
1.831	-2.171	-.05170	.10460	.03710	.13680	.03010	-.00030	.00030	.03220
1.850	2.208	-.04540	.10760	.03360	.14060	-.03200	.00120	.00000	.03300
1.870	6.506	-.03640	.11180	.02840	.14370	-.12380	.02220	-.00140	.03190
	GRADIENT	.00144	.00069	-.00080	.00087	-.01418	.00034	-.00007	.00018

RUN NO. 127/ 0 RN/L = 2.54 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT	BETAT	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
4.088	-6.519	-.02620	.10590	.04990	.13700	.10640	-.00750	.00070	.03110
4.088	-4.371	-.02320	.10530	.04740	.13710	.08610	-.00260	.00050	.03180
4.090	.009	-.01410	.10440	.04090	.13630	.00130	.00030	.00020	.03190
4.105	4.357	-.00810	.10600	.03890	.13890	-.06540	.00410	-.00010	.03290
4.114	6.484	-.00760	.10870	.03840	.14160	-.11330	.01720	-.00060	.03290
	GRADIENT	.00173	.00008	-.00097	.00021	-.01507	.00077	-.00007	.00013

RUN NO. 128/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT	BETAT	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
6.333	-4.337	.02070	.10510	.04960	.13630	.07080	-.00560	.00050	.03120
6.341	-2.153	.02530	.10410	.04650	.13560	.03550	-.00270	.00030	.03150
6.354	.019	.02790	.10470	.04520	.13620	.00680	-.00270	.00010	.03150
6.362	2.208	.02870	.10570	.04500	.13770	-.02500	-.00140	.00000	.03200
6.368	4.368	.02600	.10590	.04490	.13900	-.06370	.00220	-.00010	.03310
	GRADIENT	.00062	.00015	-.00050	.00034	-.01513	.00078	-.00007	.00020

REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR

(RETT37) (03 OCT 75)

DATE 21 OCT 75 IAB18 - FORCE SOURCE DATA TABULATION AMES97-019(IAB1) LVAP TANK - ALL HL SEALED

REFERENCE DATA
 SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
 SCALE = .0300
 ELV-18 = 8.000 ELV-08 = -4.000
 RUDDER = .000 SPDBRK = .000
 MACH = 2.200 RN/L = 2.500

PARAMETRIC DATA

RUN NO. 129/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00									
ALPHAT	BETAT	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
-7.024	-4.530	-24960	.10580	.05320	.14240	.07840	-.00440	.00060	.03660
-7.014	-2.331	-24110	.10610	.04800	.13950	.03960	-.00160	.00040	.03340
-7.003	-1.140	-23190	.10510	.04250	.14000	.00650	-.00120	.00020	.03490
-6.980	2.060	-22560	.10380	.04050	.13900	-.02640	-.00120	.00000	.03520
-6.959	4.208	-22000	.10410	.03890	.13930	-.05850	-.00020	-.00010	.03520
GRADIENT	.00342	-.00026	-.00031	-.00165	-.01554	-.00040	-.00005	-.00008	-.00005
RUN NO. 130/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00									
ALPHAT	BETAT	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
-4.814	-6.714	-21380	.10690	.05720	.14220	.12080	-.00810	.00090	.03530
-4.815	-4.557	-19990	.10690	.04830	.14180	.07990	-.00490	.00060	.03490
-4.790	-1.156	-18220	.10700	.03770	.14000	.00710	-.00170	.00020	.03300
-4.739	4.203	-16980	.10570	.03490	.13950	-.06380	.00250	-.00010	.03380
-4.731	6.358	-16630	.10610	.03340	.14070	-.09960	.00360	-.00030	.03460
GRADIENT	.00343	-.00014	-.00013	-.00153	-.01640	-.00084	-.00008	-.00008	-.00013
RUN NO. 131/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00									
ALPHAT	BETAT	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
-2.602	-6.705	-15680	.10470	.05110	.13910	.12170	-.01160	.00080	.03440
-2.585	-2.352	-13570	.10610	.03680	.13890	.04150	-.00330	.00030	.03280
-2.571	2.023	-12740	.10620	.03360	.13960	-.02690	-.00030	.00000	.03340
-2.545	6.324	-11990	.10610	.03060	.13980	-.10050	.00680	-.00040	.03370
GRADIENT	.00190	.00002	.00016	-.00119	-.01563	.00069	.00007	-.00007	.00014
RUN NO. 132/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00									
ALPHAT	BETAT	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
-4.412	-6.708	-10610	.10420	.04670	.13680	.11940	-.01100	.00080	.03260
-4.406	-4.563	-09420	.10430	.03980	.13670	.07950	-.00680	.00060	.03240
-4.401	-1.183	-08290	.10600	.03190	.13830	.00610	-.00140	.00020	.03230
-4.376	4.159	-07870	.10520	.03030	.13830	-.06380	.00380	-.00010	.03310
-4.293	6.293	-07260	.10630	.02680	.14010	-.10860	.01400	-.00100	.03380
GRADIENT	.00178	.00010	.00018	-.00109	-.01643	.00122	.00008	-.00008	.00008

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

ELV-18 =
 RUDDER =
 MACH =

8.000 ELV-08 =
 .000 SPOBRK =
 2.200 RN/L =

-4.000
 .000
 2.500

RUN NO. 133/ 0 RN/L = 2.51 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT	BETAT	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
1.761	-6.705	-.05950	.10250	.04320	.13390	.11650	-.01020	.00070	.03140
1.774	-2.367	-.04160	.10400	.03340	.13420	.04060	-.00290	.00030	.03020
1.794	2.006	-.03800	.10510	.03130	.13610	-.02450	-.00080	.00000	.03100
1.816	5.284	-.03080	.10870	.02670	.14700	-.11320	.01880	-.00110	.03130
	GRADIENT	.00082	.00025	-.00048	.00043	-.01489	.00048	-.00007	.00018

RUN NO. 134/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT	BETAT	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
3.998	-6.692	-.01500	.10200	.04350	.13250	.11920	-.01240	.00070	.03050
4.010	-4.543	-.01130	.10230	.04180	.13150	.07810	-.00770	.00050	.02920
4.013	-.181	-.00300	.10300	.03540	.13330	.00940	-.00260	.00010	.03030
4.036	4.146	.00010	.10250	.03380	.13300	-.06190	.00420	-.00010	.03050
4.047	6.293	-.00190	.10540	.03500	.13690	-.11060	.01620	-.00030	.03150
	GRADIENT	.00131	.00002	-.00092	.00017	-.01611	.00137	-.00007	.00015

RUN NO. 135/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT	BETAT	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
6.256	-4.515	.02820	.10190	.04450	.13100	.07670	-.00740	.00050	.02910
6.255	-2.338	.03550	.10210	.03970	.13170	.04220	-.00440	.00030	.02960
6.252	-.168	.03520	.10350	.03870	.13260	.00930	-.00260	.00020	.02910
6.266	2.020	.03560	.10330	.03690	.13260	-.02350	-.00070	.00000	.02930
6.269	4.152	.03580	.10310	.03780	.13310	-.05760	.00160	-.00010	.03000
	GRADIENT	.00071	.00017	-.00066	.00024	-.01541	.00100	-.00007	.00007

DATE 21 OCT 75

IAB1B - FORCE SOURCE DATA TABULATION

AMES97-01911AB:) LVAP TANK - ALL HL SEALED

PAGE 54

(RETT3B) 03 OCT 75

REFERENCE DATA

SREF = 2690.0000 SQ.FT.
 LREF = 1297.0000 IN.
 BREF = 1297.0000 IN.
 SCALE = .0300

XMRP = 976.0000 IN. XT
 YMRP = .0000 IN. YT
 ZMRP = 400.0000 IN. ZT

ELV-1B =
 RUDDER =
 MACH =

8.000 ELV-1B = -4.000
 .000 SPDBRK = .000
 2.500 RN/L = 2.500

PARAMETRIC DATA

RUN NO. 136/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT	BETAT	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
-6.906	-4.126	-24580	.10160	.05660	.13420	.05980	-.00180	.00050	.03260
-6.902	-1.948	-23780	.10190	.05130	.13350	.02620	-.00020	.00030	.03160
-6.888	.234	-23160	.10110	.04830	.13080	-.00520	-.00110	.00020	.02970
-6.873	2.421	-22450	.10110	.04540	.13070	-.03620	-.00150	.00000	.02960
-6.857	4.549	-22040	.10210	.04450	.13200	-.06860	-.00130	-.00010	.02990
	GRADIENT	.00295	.00001	-.00139	-.00033	-.01470	-.00001	-.00007	-.00034

RUN NO. 137/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT	BETAT	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
-4.739	-6.277	-20730	.10300	.05710	.13580	.09890	-.00620	.00070	.03280
-4.730	-4.142	-19440	.10210	.04970	.13410	.06010	-.00260	.00050	.03200
-4.701	.230	-17900	.10210	.04100	.13180	-.00670	-.00040	.00010	.02970
-4.675	4.545	-17230	.10280	.03900	.13240	-.06980	.00010	-.00010	.02960
	GRADIENT	6.680	.10210	.03660	.13240	-.10520	.00170	-.00030	.03030
		.00255	.00008	-.00123	-.00020	-.01495	.00031	-.00007	-.00028

RUN NO. 138/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT	BETAT	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
-2.995	-6.274	-15040	.10300	.04910	.13400	.10000	-.00950	.00060	.03100
-2.938	-1.961	-13360	.10270	.03910	.13210	.02580	-.00120	.00030	.02940
-2.920	2.384	-12700	.10140	.03540	.13070	-.03980	.00190	.00000	.02930
-2.902	6.649	-11900	.10150	.03160	.13140	-.11190	.00750	-.00060	.02930
	GRADIENT	.00152	-.00030	-.00085	-.00032	-.01510	.00071	-.00007	-.00012

RUN NO. 139/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT	BETAT	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
-3.372	-6.286	-09630	.10230	.04190	.13220	.09940	-.00790	.00060	.02990
-3.372	-4.156	-08870	.10240	.03660	.13180	.06140	-.00350	.00040	.02940
-3.365	.200	-07930	.10140	.03000	.13260	-.02350	.00030	.00010	.02920
-3.338	4.498	-07780	.10180	.03040	.12990	-.07350	.00350	-.00020	.02910
-3.331	6.631	-07420	.10240	.02790	.13160	-.11840	.01400	-.00090	.02920
	GRADIENT	.00126	-.00007	-.00072	-.00022	-.01559	.00087	-.00007	-.00015

(RETT38) (03 OCT 75)

1A81B - FORCE SOURCE DATA TABULATION
AMES97-019(1A81) LVAP TANK - ALL HL SEALED

DATE 21 OCT 75

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XTRP = 976.0000 IN. XT
 LREF = 1297.0000 IN. YTRP = .0000 IN. YT
 BREF = 1297.0000 IN. ZTRP = 400.0000 IN. ZT
 SCALE = .0300

ELV-IB =
 RUDDER =
 MACH =

ELV-08 = -4.000
 SPOBRK = .000
 RN/L = 2.500

PARAMETRIC DATA

RUN NO. 140/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT	BETAT	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
1.783	-6.278	-0.4870	.10140	.03720	.13030	.09550	-.00570	.00060	.02890
1.789	-1.969	-0.3880	.10240	.03030	.12940	.02610	-.00110	.00030	.02700
1.810	2.374	-0.3620	.10100	.02930	.12770	-.03610	-.00010	.00000	.02670
1.830	6.621	-0.3140	.10510	.02580	.13240	-.12250	.01880	-.00100	.02730
	GRADIENT	.00060	-.00032	-.00023	-.00039	-.01432	.00023	-.00007	-.00007

RUN NO. 141/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT	BETAT	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
3.370	-6.270	-0.0610	.10160	.03710	.12910	.09890	-.00790	.00050	.02750
3.369	-4.206	-0.0250	.10070	.03140	.12800	.06090	-.00340	.00040	.02730
3.375	.196	.00460	.10050	.02870	.12710	-.00490	-.00060	.00010	.02650
3.395	3.896	.00370	.09920	.02990	.12540	-.07540	.00520	.00000	.02620
3.404	6.635	-.00090	.10350	.03210	.12990	-.12160	.01680	-.00020	.02640
	GRADIENT	.00016	-.00018	-.00020	-.00032	-.01676	.00105	-.00005	-.00014

RUN NO. 142/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT	BETAT	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
6.211	-4.185	.04530	.10030	.03090	.12750	.05980	-.00310	.00040	.02720
6.218	-1.956	.04520	.10080	.03070	.12690	.02510	-.00040	.00020	.02610
6.224	.205	.04270	.10060	.03150	.12650	-.00500	-.00010	.00010	.02590
6.230	2.395	.04070	.10030	.03180	.12540	-.03750	.00120	.00000	.02510
6.235	3.882	.04020	.09880	.03160	.12470	-.07080	.00290	-.00010	.02590
	GRADIENT	-.00072	-.00016	.00012	-.00034	-.01574	.00066	-.00006	-.00018

(RETT39) (03 OCT 75)

DATE 21 OCT 75 IAB18 - FORCE SOURCE DATA TABULATION
AMES97-019(IAB1) LVAP TANK - ALL HL SEALED

REFERENCE DATA

SREF = 2880.0000 SO.FT. XPRP = 976.0000 IN. XT
LREF = 1297.0000 IN. YPRP = .0000 IN. YT
BREF = 1297.0000 IN. ZPRP = 400.0000 IN. ZT
SCALE = .0300

PARAMETRIC DATA

ELV-IB =
RUDDER =
MACH =
ELV-OB = .000
SPDRK = .000
RNAL = 1.550
RNL = 2.500

RUN NO. 143/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT BETAT CLMF CA CY CYNF CBL CABT
-7.062 .419 -.21430 .10800 .01680 .15320 .00120 -.00360
GRADIENT .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000

RUN NO. 144/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT BETAT CLMF CA CY CYNF CBL CABT
-4.848 -.360 -.18610 .11060 .02910 .15080 .05930 -.00270
-4.832 .393 -.16690 .10960 .01730 .15270 .00250 -.00380
-4.832 .119 -.15510 .10870 .01560 .15250 -.05140 -.00920
GRADIENT .00385 -.00023 -.00170 .00022 -.01368 -.00079 .00060 .04020
-.00020 .04290 .04380 .00045

RUN NO. 145/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT BETAT CLMF CA CY CYNF CBL CABT
-3.324 -.124 -.11480 .10970 .05020 .15210 .07900 .04240
-3.323 -.354 -.10260 .11080 .04170 .14840 .053 0 .03760
-3.327 .354 -.08610 .10860 .02990 .15020 -.00140 .04160
-2.73 .085 -.08060 .11130 .03180 .15060 -.05600 .03930
-2.249 6.864 .07000 .11420 .02680 .15640 -.09380 .04220
GRADIENT .00275 .00005 -.00127 .00028 -.01351 -.00074 .00015 .00023

RUN NO. 146/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT BETAT CLMF CA CY CYNF CBL CABT
3.538 -4.027 -.03600 .10940 .05810 .14350 .05970 .03410
3.552 .379 -.02590 .10650 .05170 .14290 .00010 .03440
3.568 4.102 -.02530 .10840 .05560 .14070 -.06320 .03230
GRADIENT .00135 -.00013 -.00034 -.00034 -.01507 .00019 .00009 .00021

RUN NO. 147/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT BETAT CLMF CA CY CYNF CBL CABT
6.379 .411 .00050 .10950 .06280 .14500 .00090 .03050
GRADIENT .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000

REPRODUCIBILITY OF THE ORIGINAL

DATE 21 OCT 75

1A818 - FORCE SOURCE DATA TABULATION

PAGE 57

(RETT40) (03 OCT 75)

AMES97-013(1A81) LVAP TANK - ALL HL SEALED

REFERENCE DATA

SREF = 2030.0000 SQ.FT. XMRP = 976.0000 IN. XT
LREF = 1297.0000 IN. YMRP = .0000 IN. YT
BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
SCALE = .0300

PARAMETRIC DATA

ELV-18 = .000
RUDDER = .000
MACH = 2.000
ELV-08 = .000
SPOBRK = .000
RN/L = 2.500

RUN NO. 148/ 0 RN/L = 2.55 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT -7.023
BETAT .065
GRADIENT .00000
CAF .10680
CLMF .03600
CA .14460
CY .00210
CYNF .00020
CBL .00030
CABT .03780
CABT .00000

RUN NO. 149/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT -4.836
BETAT -4.398
GRADIENT .032
CAF .10690
CLMF .03150
CA .14450
CY .00160
CYNF .00010
CBL .00060
CABT .03710
CABT .03760
CABT .03730
CABT .00003

RUN NO. 150/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT -3.51
BETAT -6.518
GRADIENT -4.372
CAF .10670
CLMF .04640
CA .13980
CY .10810
CYNF .00840
CBL .00080
CABT .03310
CABT .03430
CABT .03570
CABT .03620
CABT .03570
CABT .00024

RUN NO. 151/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT 3.452
BETAT -4.368
GRADIENT .014
CAF .10630
CLMF .04590
CA .13750
CY .06920
CYNF .00380
CBL .00050
CABT .03120
CABT .03320
CABT .03300
CABT .00023

RUN NO. 152/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT 6.292
BETAT .032
GRADIENT .00000
CAF .10580
CLMF .04460
CA .13650
CY .00380
CYNF .00110
CBL .00010
CABT .03280
CABT .00000

(RETT41) (03 OCT 75)

1A918 - FORCE SOURCE DATA TABULATION
AME597-019(1A81) LVAP TANK - ALL HL SEALED

DATE 21 OCT 75

REFERENCE DATA

SREF = 2690.0000 SO.FT. XPRP = 976.0000 IN. XT
LREF = 1297.0000 IN. YPRP = .0000 IN. YT
BREF = 1297.0000 IN. ZPRP = 400.0000 IN. ZT
SCALE = .0300

PARAMETRIC DATA

ELV-18 = .000
RUDDER = .000
MACH = 2.200
ELV-08 = .000
SPOBRK = .000
RN/L = 2.500

RUN NO. 153/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT -7.003
BETAT -1.125
GRADIENT .00000
CAF .10590
CLMF .04320
CA .14040
CY .00850
CYNF -.00220
CBL .00020
CABT .03450
CABT .00000

RUN NO. 154/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT -4.865
BETAT -1.151
GRADIENT 3.571
CAF .10500
CLMF .04800
CA .14150
CY .07720
CYNF -.00490
CBL .00060
CABT .03650
CABT .03420
CABT .03440
CABT -.00027

RUN NO. 155/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT -4.825
BETAT -6.718
GRADIENT 6.329
CAF .10340
CLMF .04630
CA .13770
CY .11980
CYNF -.01110
CBL .00080
CABT .03430
CABT .03240
CABT .03300
CABT .03370
CABT .03430
CABT .00016

RUN NO. 156/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT 3.376
BETAT -4.544
GRADIENT 3.545
CAF .10380
CLMF .04090
CA .13270
CY .07790
CYNF -.00660
CBL .00050
CABT .02890
CABT .03180
CABT .03110
CABT .00028

RUN NO. 157/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT 6.193
BETAT -1.159
GRADIENT .00000
CAF .10530
CLMF .03730
CA .13650
CY .00800
CYNF -.00190
CBL .00020
CABT .03120
CABT .00000

DATE 21 OCT 75

1A01B - FORCE SOURCE DATA TABULATION

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(RETTN2) (03 OCT 75)

-MES97-019(1A01B) LVAP TANK - ALL HL SEALED

REFERENCE DATA

SREF = 2690.0000 SO.FT.
 LREF = 1297.0000 IN.
 BREF = 1297.0000 IN.
 SCALE = .0300

XMRP = 976.0000 IN. XT
 YMRP = .0000 IN. YT
 ZMRP = 400.0000 IN. ZT

ELV-18 =
 RUDDER =
 HACH =

PARAMETRIC DATA

.000 ELV-08 = .000
 .000 SPOBK = .000
 2.500 RN/L = 2.500

RUN NO. 158/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT

-6.879

BETAT
 GRADIENT

CNF
 -22890

CAF
 .10220

CLMF
 .04790

CA
 .13100

CY
 -.00500

CYNF
 -.00130

CBL
 .00020

CABT
 .02880

.00000

RUN NO. 159/ 0

CAF
 .10250

CLMF
 .03860

CA
 .13150

CY
 -.06590

CYNF
 .00040

CBL
 -.00010

CABT
 .02900

.00034

RUN NO. 160/ 0

CAF
 .10270

CLMF
 .02620

CA
 .13130

CY
 -.01679

CYNF
 .00068

CBL
 -.00007

CABT
 .02970

.00060

RUN NO. 161/ 0

CAF
 .10230

CLMF
 .03060

CA
 .12980

CY
 -.06090

CYNF
 -.00370

CBL
 .00030

CABT
 .02760

.00010

RUN NO. 162/ 0

CAF
 .10170

CLMF
 .03090

CA
 .12830

CY
 -.00470

CYNF
 -.00050

CBL
 .00010

CABT
 .02660

.00000

DATE 21 OCT 78

AMES97-019(1A01) LVAP TANK - ALL ML SEALED

(RETT43) (OCT 75)

REFERENCE DATA

SHEET	=	2680.0000	SO. FT.	X98P	=	976.0000	IN.	X1
LIFT	=	1297.0000	IN.	M4P	=	.0000	IN.	Y1
BSEF	=	1297.0000	IN.	Z48P	=	400.0000	IN.	Z1
SCALE	=	.0300						

- ELV-1B
- RUDDER
- HACH

8.000	ELV-08	=	.000
.000	SPCBK	=	.000
1.550	RN/L	=	2.500

PARAMETRIC DATA

ITEM NO.	REV/L	2.54	GRADIENT INTERVAL	-5.00/	5.00
1636	0				

BETAT	CNF	CAF	CLNF	CA	CY	CYNF	CBL	CABT
ALPHAMAT	-21300	.10990	.01640	.15390	.00320	-.00460	.00030	.04500
	7.947	.420	.0000	.0000	.0000	.0000	.0000	.00000

164/ 0	2.53	GRADIENT INTERVAL =	-5.00/	5.00
--------	------	---------------------	--------	------

	ALPHAT	BETAT	CMF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
1	4.932	-3.960	-16400	.11103	.02870	.15080	.00860	-.00270	.00060	.03990
2	4.816	.397	-16710	.10960	.01750	.15280	.00310	-.00469	.00020	.04320
3	4.794	4.118	-15430	.10970	.01540	.15200	.05240	-.00503	-.00023	.04230
4	4.824	4.922	4.922	.00017	-.00167	.00016	-.01371	-.00082	-.00010	.00032

RUN NO.	165/ 0	RN/L =	2.52	GRADIENT INTERVAL =	-5.00/ 5.00
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[illegible]

RUN NO. 166 / 0 RM/L = 2.51 GRADIENT INTERVAL = -5.00 / 5.00

ALPHAT	BETAT	CNF	CAF	CLMF	CA	CY	CYMF	CBL	CART
-.318	-6.119	-.1120	.10990	.04960	.15010	.07820	.00360	.00080	.04020
-.322	-3.994	-.10220	.11050	.04130	.14830	.05260	.00040	.00060	.03780
-.326	-1.798	-.09100	.10970	.03390	.14830	.02450	.00220	.00040	.03860
-.318	-.369	-.08440	.11030	.02920	.15090	-.00260	-.00230	.00010	.03976
-.280	2.553	-.07680	.11160	.02820	.15090	-.03660	.00040	.00000	.03930
-.280	4.005	-.07560	.11000	.03170	.14840	-.05640	.00060	-.00140	.03840
-.257	6.857	-.07080	.11430	.02780	.15540	-.09010	.00110	.00140	.04110
NEGATIVE	00.208	-.00127	.00205	-.00127	.00016	-.01360	-.00050	-.00012	.00010

MS: NO 167/ 0 RM/1 • 2.51 GRADIENT INTERVAL • -5.00/ 5.00

ALPHAT	BETAT	CAF	CLMF	CA	CY	CYNF	CBL	CABT
1.927	.364	.11110	.04100	.15010	.00210	-.00000	.00010	.00000
		.00000	.00000	.00000	.00000	.00000	.00000	.00000
		-.05330						

REFERENCE DATA

SREF = 2690.0000 SQ.FT.	XMRP = 976.0000 IN. XT	ELV-18 =	8.000	ELV-08 =	.000
LREF = 1297.0000 IN.	YMRP = .0000 IN. YT	RUDDER =	.000	SPOBRK =	.000
BREF = 1297.0000 IN.	ZMRP = 400.0000 IN. ZT	MACH =	1.550	RN/L =	2.500
SCALE = .0300					

PARAMETRIC DATA

CBL	CY	CYNF	CABT
.00040	.06030	-.00430	.03310
.00010	.00040	-.00360	.03510
-.00030	-.06280	-.00260	.03330
-.00009	-.01522	.00021	.00004

REFERENCE DATA

ALPHAT	BETAT	CNF	CAF	CLMF	CA	CY	CYNF
3.541	-3.965	-.03540	.10940	.05770	.14250	.06030	-.00430
3.554	.381	-.02510	.10790	.05140	.14300	.00040	-.00360
3.599	4.100	-.02410	.10760	.05390	.14090	-.06280	-.00260
GRADIENT		.00143	-.00023	-.00050	-.00019	-.01522	.00021

RUN NO. 168/ 0 RN/L = 2.51 GRADIENT INTERVAL = -5.00/ 5.00

PARAMETRIC DATA

CBL	CY	CYNF	CABT
.00040	.06030	-.00430	.03310
.00010	.00040	-.00360	.03510
-.00030	-.06280	-.00260	.03330
-.00009	-.01522	.00021	.00004

REFERENCE DATA

ALPHAT	BETAT	CNF	CAF	CLMF	CA	CY	CYNF
6.382	.405	-.00020	.10950	.06300	.14480	.00050	-.00370
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 169/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

PARAMETRIC DATA

CBL	CY	CYNF	CABT
.00010	.00050	-.00370	.03530
.00000	.00000	.00000	.00000

REFERENCE DATA

SREF = 2690.0000 SQ.FT.	XMRP = 976.0000 IN. XT	ELV-18 =	9.000	ELV-08 =	.000
LREF = 1297.0000 IN.	YMRP = .0000 IN. YT	RUDDER =	.000	SPOBRK =	.000
BREF = 1297.0000 IN.	ZMRP = 400.0000 IN. ZT	MACH =	2.000	RN/L =	2.500
SCALE = .0300					

PARAMETRIC DATA

CBL	CY	CYNF	CABT
.00030	.00320	-.00080	.03670
.00000	.00000	.00000	.00000

REFERENCE DATA

ALPHAT	BETAT	CNF	CAF	CLMF	CA	CY	CYNF
-7.017	.064	-.22750	.10660	.03430	.14330	.00320	-.00080
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 170/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

PARAMETRIC DATA

CBL	CY	CYNF	CABT
.00030	.00320	-.00080	.03670
.00000	.00000	.00000	.00000

REFERENCE DATA

ALPHAT	BETAT	CNF	CAF	CLMF	CA	CY	CYNF
-4.830	-4.341	-.19660	.10700	.04290	.14300	.06950	-.00360
-4.811	.032	-.17740	.10680	.03060	.14310	.00380	-.00140
-4.814	3.776	-.16990	.10660	.03050	.14310	-.05980	-.00290
GRADIENT		.00332	-.00005	-.00156	.00001	-.01590	.00021

RUN NO. 171/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

PARAMETRIC DATA

CBL	CY	CYNF	CABT
.00060	.00020	-.00020	.03650
-.00010	-.00010	.00006	.00006

DATE 21 OCT 75

1A81B - FORCE SOURCE DATA TABULATION

AMES97-019(1A81) LVAP TANK - ALL HL SEALED

(RETT44) (03 OCT 75)

PARAMETRIC DATA

ELV-IB =
RUDDER =
MACH =

8.000
.000
2.000

ELV-OB =
SPDRK =
RN/L =

.000
.000
2.500

REFERENCE DATA

SREF = 2690.0000 SQ.FT.
LREF = 1297.0000 IN.
BREF = 1297.0000 IN.
SCALE = .0300

XMRP = 975.0000 IN. XT
YMRP = .0000 IN. YT
ZMRP = 400.0000 IN. ZT

RUN NO. 173/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT
-378
-373
-372
-363
-345
-327
-310

BETAT
-6.520
-4.376
-2.171
.010
2.213
3.758
6.539
GRADIENT

CNF
-1.10770
-.09610
-.08620
-.08250
-.07720
-.07700
-.06990
.00232

CAF
.10710
.10550
.10580
.10640
.10820
.10650
.10920
.00013

CLMF
.04560
.03880
.03260
.02950
.02760
.02860
.02520
-.00126

CA
.14060
.14090
.13950
.14090
.14290
.14160
.14410
.00024

CY
.10820
.06880
.03360
-.00100
-.03330
-.06780
-.11600
-.01641

CYNF
-.00950
-.00380
-.00160
.00030
.00090
.00150
.01350
.00064

CBL
.00080
.00060
.00030
.00010
.00000
-.00030
-.00110
-.00010

CABT
.03350
.03440
.03370
.03450
.03470
.03510
.03490
.00011

RUN NO. 174/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT
1.836

BETAT
.019
GRADIENT

CNF
-.04320
.00000

CAF
.10600
.00000

CLMF
.03180
.00000

CA
.13890
.00000

CY
.00210
.00000

CYNF
-.00070
.00000

CBL
.00010
.00000

CABT
.03290
.00000

RUN NO. 175/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT
3.455
3.473
3.499

BETAT
-4.413
.010
3.764
GRADIENT

CNF
-.01840
-.00740
-.00390
.00179

CAF
.10480
.10450
.10440
-.00005

CLMF
.04510
.03840
.03830
-.00085

CA
.13650
.13600
.13690
.00004

CY
.06830
.00200
-.06960
-.01681

CYNF
-.00370
.00000
.00360
.00089

CBL
.03050
.00010
-.00010
-.00007

CABT
.03170
.03150
.03250
.00009

RUN NO. 176/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT
6.305

BETAT
.039
GRADIENT

CNF
.02900
.00000

CAF
.10470
.00000

CLMF
.04440
.00000

CA
.13660
.00000

CY
.00370
.00000

CYNF
-.00110
.00000

CBL
.00010
.00000

CABT
.03190
.00000

(RETT45) (03 OCT 75)

1A81B - FORCE SOURCE DATA TABULATION
AME597-019(1A81) LVAP TANK - ALL HL SEALED

DATE 21 OCT 75

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT
LREF = 1297.0000 IN. YMRP = .0000 IN. YT
BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
SCALE = .0300

PARAMETRIC DATA

ELV-18 =
RUDDER =
MACH =

8.000 ELV-08 =
.000 SPDRK =
2.200 RN/L =

RUN NO. 177/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT -7.000
BETAT -.136
GRADIENT .00000
CAF .10490
CLMF .04280
CA .13940
CY .00890
CYNF -.00200
CBL .00030
CABT .03450
.00000

RUN NO. 178/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT -4.824
BETAT -4.536
GRADIENT 3.559
CAF .10450
CLMF .03760
CA .13930
CY .00770
CYNF -.00170
CBL .00060
CABT .03570
.00020
.03420
.03440
-.00010
-.00009
-.00017

RUN NO. 179/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT -2.604
BETAT -.179
GRADIENT .00000
CAF .10510
CLMF .03400
CA .13860
CY .00880
CYNF -.00220
CBL .00020
CABT .03350
.00000

RUN NO. 180/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT -3.385
BETAT -6.719
GRADIENT -4.562
CAF .10300
CLMF .04650
CA .13600
CY .12010
CYNF -.01170
CBL .00080
CABT .03300
.03260
.03190
.03210
.03260
.03290
.03310
-.00006

RUN NO. 181/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT 1.754
BETAT -.163
GRADIENT .00000
CAF .10400
CLMF .03120
CA .13540
CY .00710
CYNF -.00260
CBL .00020
CABT .03140
.00000

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT ELV-1B = .000 ELV-OB = .000
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT RUDDER = .000 SPOBRK = .000
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT MACH = 2.200 RN/L = 2.500
 SCALE = .0300

RUN NO. 182/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT BETAT CNF CAF CLMF CA CY CYNF CBL CABT
 3.390 -4.591 -0.00970 .10160 .04070 .13080 .07690 -0.00770 .00050 .02920
 3.391 -1.177 -0.00170 .10300 .03470 .13310 .00870 -0.00260 .00020 .03010
 3.404 3.546 .00090 .10170 .03260 .13160 -0.06120 .00330 -0.00010 .02990
 GRADIENT .00132 .00002 -0.00101 .00011 -0.01693 .00135 -0.00007 .00009

RUN NO. 183/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT BETAT CNF CAF CLMF CA CY CYNF CBL CABT
 6.190 -1.166 -0.03600 .10330 .03750 .13260 .00840 -0.00250 .00020 .02930
 GRADIENT .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT ELV-1B = 10.000 ELV-OB = -4.000
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT RUDDER = .000 SPOBRK = .000
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT MACH = 1.550 RN/L = 2.500
 SCALE = .0300

RUN NO. 184/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT BETAT CNF CAF CLMF CA CY CYNF CBL CABT
 -7.029 4.432 -0.21360 .10810 .01680 .15390 .00070 -0.00370 .00020 .04580
 GRADIENT .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000

RUN NO. 185/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT BETAT CNF CAF CLMF CA CY CYNF CBL CABT
 -4.878 -4.002 -0.18280 .11020 .02830 .15070 .05750 -0.00220 .00060 .04050
 -4.863 .402 -0.16350 .10900 .01670 .15280 .00330 -0.00450 .00020 .04380
 -4.810 4.107 -0.15570 .10870 .01530 .15230 -0.05320 -0.00800 -0.00020 .04360
 GRADIENT .00337 -0.00019 -0.00164 .00021 -0.01361 -0.00071 -0.00010 .00039

RUN NO. 186/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT BETAT CNF CAF CLMF CA CY CYNF CBL CABT
 -2.575 .401 -0.12430 .10920 .02140 .15130 -0.00040 -0.00360 .00010 .04210
 GRADIENT .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000

(RETT47) (03 OCT '75)

TAB1B - FORCE SOURCE DATA TABULATION
AMES97-019(TAB1) LVAP TANK - ALL HL SEALED

DATE 21 OCT 75

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 975.0000 IN. XT
LREF = 1297.0000 IN. YMRP = .0000 IN. YT
BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
SCALE = .0300

PARAMETRIC DATA

ELV-1B = 10.000 ELV-OB = -4.000
RUDDER = .000 SPOBRK = .000
MACH = 2.000 RN/L = 2.500

RUN NO. 191/ 0 RN/L = 2.55 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT -7.019
BETAT .064
GRADIENT .00000
CAF .10500
CLMF .07490
CA .14280
CY .00300
CYNF -.00070
CBL .00030
CABT .03780
CBL .00000

RUN NO. 192/ 0 RN/L = 2.55 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT -4.905
BETAT -4.400
GRADIENT 3.775
CAF .10610
CLMF .04310
CA .14310
CY .06940
CYNF -.00360
CBL .00060
CABT .03700
CBL .00020
CABT .03720
CBL .00020
CABT .03700
CBL .00010
CABT .00000

RUN NO. 193/ 0 RN/L = 2.54 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT -2.585
BETAT .033
GRADIENT .00000
CAF .10650
CLMF .02910
CA .14260
CY .00310
CYNF -.00150
CBL .00020
CABT .03610
CBL .00000

RUN NO. 194/ 0 RN/L = 2.54 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT -3.363
BETAT -6.508
GRADIENT -4.438
CAF .10670
CLMF .04520
CA .14030
CY .10830
CYNF -.00850
CBL .00080
CABT .03350
CBL .00060
CABT .03440
CBL .00030
CABT .03390
CBL .00010
CABT .03420
CBL .00000
CABT .03440
CBL .00030
CABT .03530
CBL .00100
CABT .00540
CBL .00010
CABT .00010

RUN NO. 195/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT 1.849
BETAT .007
GRADIENT .00000
CAF .10530
CLMF .03190
CA .13760
CY .00490
CYNF -.00260
CBL .00010
CABT .03230
CBL .00000

DATE 21 OCT 75

IABIB - FORCE SOURCE DATA TABULATION

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(RETT47) (03 OCT 75)

AMES97-019(IAB1) LVAP TANK - ALL HL SEALED

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT ELV-18 = 10.000 ELV-08 = -4.000
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT RUDDER = .000 SPOBRK = .000
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT MACH = 2.000 RN/L = 2.500
 SCALE = .0300

PARAMETRIC DATA

RUN NO. 196/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 3.00

ALPHAT	BETAT	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
3.467	-4.411	-0.01530	.10510	.04390	.13580	.06870	-0.00380	.00050	.03070
3.476	.008	-0.00640	.10370	.03850	.13470	.00630	-0.00240	.00010	.03100
3.495	3.673	-0.00410	.10370	.03820	.13600	-0.06210	.00040	-0.00010	.03230
	GRADIENT	.00141	-0.00018	-0.00072	.00002	-0.01611	.00051	-0.00007	.00019

RUN NO. 197/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAT	BETAT	CNF	CAF	CLMF	CA	CY	CYNF	CBL	CABT
6.364	.033	.02880	.10460	.04450	.13540	.00780	-0.00340	.00010	.03080
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT ELV-18 = .000 ELV-08 = .000
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT RUDDER = .000 SPOBRK = 55.000
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT MACH = 2.500 RN/L = 3.000
 SCALE = .0300

PARAMETRIC DATA

RUN NO. 100/ 0 RN/L = 3.03 GRADIENT INTERVAL = -5.00/ 5.00

BETAO	ALPHAO	CHE1	CHEO	CHM1	CHM2	CHM3	CHM4
.230	-6.381	.07670	.00600	-.02300	.09970	-.01190	.01790
.215	-4.330	.02670	.00210	-.03480	.06150	-.00310	.00520
.182	-1.116	-.00260	-.00200	-.00450	.00190	.00740	-.00940
.196	4.056	-.02540	-.01130	.05040	-.07590	.03020	-.04150
.209	8.267	-.03460	-.03390	.07810	-.11270	.08400	-.11780
.218	10.355	-.03420	-.03390	.07880	-.11300	.09420	-.12800
	GRADIENT	-.00621	-.00160	.01015	-.01638	.00397	-.00557

(RETH30) (12 OCT 74)

AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED

REFERENCE DATA
 SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT ELV-IB = .000 ELV-OB = .000
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT RUDDER = .000 SPOBRK = .000
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT MACH = 2.200 RN/L = 3.000
 SCALE = .0300

RUN NO. 101/ 3 RN/L = 3.03 GRADIENT INTERVAL = -5.00/ 5.00

BETA0	ALPHA0	CHE1	CHE0	CHM1	CHM2	CHM3	CHM4
-.117	-6.403	.05360	.00380	-.09810	.15180	-.00810	.01200
-.139	-4.308	.03920	-.00120	-.07720	.11640	.00380	-.00500
-.174	-.147	.01470	-.01290	-.03280	.04740	.03180	-.04460
-.167	4.050	-.00330	-.02830	.00860	-.01190	.07120	-.09950
-.139	8.292	-.01530	-.04160	.03690	-.05220	.11050	-.15210
-.118	10.383	-.01830	-.03580	.03750	-.05580	.09940	-.13510
	GRADIENT	-.00508	-.00324	.01027	-.01535	.00807	-.01131

AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED

REFERENCE DATA
 SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT ELV-IB = .000 ELV-OB = .000
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT RUDDER = .000 SPOBRK = .000
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT MACH = 2.000 RN/L = 3.000
 SCALE = .0300

RUN NO. 102/ 0 RN/L = 3.03 GRADIENT INTERVAL = -5.00/ 5.00

BETA0	ALPHA0	CHE1	CHE0	CHM1	CHM2	CHM3	CHM4
.079	-6.373	.06390	.00450	-.12530	.18920	-.00960	.01420
.053	-4.277	.05310	-.00090	-.10260	.15560	.00390	-.00480
.011	-.098	.02960	-.01910	-.05450	.08410	.04770	-.06680
.020	4.129	.01120	-.03660	-.01500	.02620	.09560	-.13220
.053	8.392	-.00040	-.04090	.01550	-.01590	.11430	-.15530
.074	10.494	-.00300	-.03920	.02970	-.03270	.10980	-.14910
	GRADIENT	-.00498	-.00425	.01042	-.01539	.01091	-.01515

(FETH32) (12 OCT 74)

PARAMETRIC DATA

DATE 21 OCT 75 IAB18 - FORCE SOURCE DATA TABULATION

(RETH33) (12 OCT 74)

AMES97-019(IAB18) LVAP ORBITER-ALL HL SEALED

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
 SCALE = .0300

RUN NO. 103/ 0 RN/L = 3.01 GRADIENT INTERVAL = -5.00/ 5.00

BETA0 ALPHA0 CHE1 CHE0 CHM1 CHM2 CHM3 CHM4
 .428 -6.390 .13530 .00850 -.22830 .36360 -.01180 .02030
 .401 -4.271 .11990 -.00410 -.20730 .32720 .02200 -.02620
 .348 .036 .09440 .06160 .16780 .26230 .06310 -.00150
 .366 4.233 .07350 -.02490 .12880 .20230 .08140 -.10630
 .403 8.510 .05200 -.03470 .09080 .14280 .10320 -.13790
 GRADIENT -.00546 -.00247 .00923 -.01469 .00698 -.00944

PARAMETRIC DATA

ELV-18 = .000 ELV-08 = .000
 RUDDER = .000 SPOBRK = 55.000
 MACH = 1.550 RN/L = 3.000

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
 SCALE = .0300

RUN NO. 115/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

BETA0 ALPHA0 CHE1 CHE0 CHM1 CHM2 CHM3 CHM4
 .403 -6.292 .05710 .02080 -.08570 .14270 -.03930 .06010
 .378 -4.209 .04630 .00890 -.06410 .11030 .01900 .01900
 .358 -2.124 .03760 .00020 -.04450 .08210 .01420 -.01400
 .342 .027 .02810 -.00420 .02470 .05270 .02910 -.03330
 .346 2.059 .01910 -.00700 .00720 .02640 .03790 -.04490
 .356 3.707 .01210 -.01200 .01250 .00030 .04380 -.06180
 .363 6.242 .00700 -.01700 .02310 -.01610 .00110 -.07810
 GRADIENT -.00434 -.00245 .00950 -.01382 .00719 -.00964

PARAMETRIC DATA

ELV-18 = 8.000 ELV-08 = -4.000
 RUDDER = .000 SPOBRK = .000
 MACH = 1.550 RN/L = 2.500

AMES97-019(IAB18) LVAP ORBITER-ALL HL SEALED

(RETH34) (12 OCT 74)

DATE 21 OCT 75

IAB18 - FORCE SOURCE DATA TABULATION

PAGE 70

AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED

(RETH35) (12 OCT 74)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. YMRP = 275.0000 IN. YT
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

ELV-1B = 8.000 ELV-08 = -4.000
 RUDDER = .000 SPOBRK = .000
 MACH = 1.30 RN/L = 2.500

RUN NO. 112/ 0 RN/L = 2.54 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0	BETA0	CHE1	CHE0	CHM1	CHM2	CHM3	CHM4
-6.333	-3.794	.05230	-.04690	-.08110	.13350	-.06200	.01510
-6.319	-1.683	.05800	-.05720	-.08710	.14510	-.04480	-.01250
-6.087	.391	.05970	-.06170	-.08440	.14410	-.03970	-.02200
-6.279	2.522	.06100	-.06460	-.08410	.14510	-.03590	-.02870
-6.142	4.587	.05960	-.06610	-.08000	.13960	-.03310	-.03300
	GRADIENT	.00084	-.00219	.00025	.00058	.00318	-.00536

RUN NO. 116/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0	BETA0	CHE1	CHE0	CHM1	CHM2	CHM3	CHM4
-4.215	-5.870	.04520	.03420	-.07910	.12440	-.06230	.09650
-4.211	-3.827	.05030	.02390	-.08350	.13380	-.03990	.06380
-4.154	.385	.04580	.00820	-.06390	.10970	-.01120	.01940
-4.155	4.561	.04380	.00560	-.05380	.09760	-.00710	.01270
-4.139	6.623	.04430	.00380	-.05300	.09730	-.00340	.00720
	GRADIENT	-.00078	-.00218	.00354	-.00432	.00391	-.00610

RUN NO. 117/ 0

RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0	BETA0	CHE1	CHE0	CHM1	CHM2	CHM3	CHM4
-2.110	-5.871	.03650	.02140	-.06260	.09920	-.03510	.05650
-2.109	-1.724	.03590	.00300	-.05010	.08600	.00670	-.00370
-2.081	2.471	.03330	-.00400	-.03540	.06870	.01780	-.02180
-2.052	6.607	.02880	-.00660	-.02370	.05250	.02430	-.03100
	GRADIENT	-.00062	-.00167	.00350	-.00412	.00265	-.00431

RUN NO. 118/ 0

RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0	BETA0	CHE1	CHE0	CHM1	CHM2	CHM3	CHM4
.004	-5.872	.02820	.01390	-.04870	.07700	-.01580	.02970
.007	-3.836	.03950	.00850	-.06070	.09920	-.00470	.01320
.019	.354	.02540	-.00630	-.02170	.04710	.03000	-.03640
.011	4.521	.01650	-.01060	-.00180	.01830	.04000	-.05060
.022	6.587	.01710	-.01210	.00220	.01490	.04790	-.05610
	GRADIENT	-.00263	-.00229	.00705	-.00968	.00535	-.00764

(12 OCT 74)

(RETH35)

PARAMETRIC DATA
 ELV-08 = -4.000
 SPOBRK = .000
 RN/L = 2.500

ORBITER-ALL ML SEALED

LAB18 - FORCE SOURCE DATA TABULATION
 APES97-019(1A81) LVAP

ELV-18 =
 RUDDER =
 MACH =

DATE 21 OCT 75

REFERENCE DATA

SREF = 2690.0000 SQ.FT.
 LREF = 1297.0000 IN.
 BREF = 1297.0000 IN.
 SCALE = .0300

XPMP = 976.0000 IN. YT
 YMP = .0000 IN. ZT
 ZMP = 400.0000 IN. ZT

RUN NO. 119/ 0

ALPHAO
 2.066
 2.063
 2.078
 2.104

BETAO
 -5.868
 -1.746
 2.458
 6.587

GRADIENT
 120/ 0

ALPHAO
 4.193
 4.191
 4.197
 4.208
 4.216

BETAO
 -5.872
 -3.831
 .361
 4.530
 6.589

GRADIENT
 121/ 0

ALPHAO
 6.319
 6.315
 6.316
 6.321
 6.324

BETAO
 -3.811
 -1.716
 .374
 2.475
 4.539

GRADIENT

GRADIENT INTERVAL = -5.00/ 5.00

CHM1
 .03710
 -.01680
 .01190
 .03770
 .00678

CHM2
 .06150
 .03510
 .00040
 .03360
 -.00825

CHM3
 .00220
 .02900
 .04330
 .05240
 .00364

CHM4
 .00330
 -.03330
 -.05580
 -.06750
 -.00535

CHM5
 .02110
 -.03410
 -.06440
 -.07770
 -.08030
 -.00522

CHM6
 .05770
 -.05720
 -.08110
 -.08810
 -.09320
 -.00440

CHM7
 .01550
 .02870
 .05040
 .03950
 .06110
 .00369

CHM8
 .04080
 .05330
 .00530
 .05090
 .05670
 -.01270

CHM9
 .03110
 .05250
 .06180
 .06650
 .07020
 .00307

GRADIENT INTERVAL = -5.00/ 5.00

CHM1
 .03710
 -.01680
 .01190
 .03770
 .00678

CHM2
 .06150
 .03510
 .00040
 .03360
 -.00825

CHM3
 .00220
 .02900
 .04330
 .05240
 .00364

CHM4
 .00330
 -.03330
 -.05580
 -.06750
 -.00535

CHM5
 .02110
 -.03410
 -.06440
 -.07770
 -.08030
 -.00522

CHM6
 .05770
 -.05720
 -.08110
 -.08810
 -.09320
 -.00440

CHM7
 .01550
 .02870
 .05040
 .03950
 .06110
 .00369

CHM8
 .04080
 .05330
 .00530
 .05090
 .05670
 -.01270

CHM9
 .03110
 .05250
 .06180
 .06650
 .07020
 .00307

(RETH36) (12 OCT 74)

1A818 - FORCE SOURCE DATA TABULATION
AVES97-019(1A81) LVAP ORBITER-ALL PL SEALED

DATE 21 OCT 75

REFERENCE DATA

SREF = 2000.0000 SO.FT. ZMRP = 976.0000 IN. XT
LREF = 129.0000 IN. YMRP = .0000 IN. YT
BREF = 129.0000 IN. ZMRP = 400.0000 IN. ZT
SCALE = .0300

PARAMETRIC DATA

ELV-18 = -4.000
RUDDER = .000
MACH = 2.500
8.000 ELV-08 = -4.000
.000 SPOBRK = .000
2.000 RN/L = 2.500

RUN NO. 122/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0 BETAO CHE1 CHEO CHM1 CHM2 CHM3 CHM4
-6.354 -4.160 .02610 .01580 -.04560 .07160 -.03840 .05420
-6.341 -2.050 .01830 .01320 -.02650 .04480 -.03440 .04760
-6.322 .062 .00570 .01270 -.00140 .00700 -.03470 .04750
-6.302 2.174 .00210 .02250 -.02460 -.03370 .04580 .04580
-6.286 4.251 .00930 .01120 .04410 -.03120 .04240 .04240
GRADIENT .00433 -.00049 .01085 -.01518 .00072 -.00121

RUN NO. 123/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0 BETAO CHE1 CHEO CHM1 CHM2 CHM3 CHM4
-4.273 -6.247 .02400 .01030 -.04210 .06610 -.02440 .03470
-4.265 -4.183 .01850 .00970 -.03050 .04900 -.02520 .03490
-4.235 .039 .00200 .00680 .01970 -.02170 -.02040 .02720
-4.200 4.234 .02060 .00580 .07260 -.09320 .01910 .02490
-4.192 6.302 .02840 .00580 .09730 -.12570 .01910 .02490
GRADIENT .00465 -.00046 .01225 -.01689 .00073 -.00119

RUN NO. 124/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0 BETAO CHE1 CHEO CHM1 CHM2 CHM3 CHM4
-2.186 -6.258 .01530 .00320 -.02360 .03890 -.00690 .01000
-2.175 -2.080 .00360 .00250 .00790 -.00420 .00120 .00360
-2.146 2.137 .02160 .00050 .07660 .09820 .00390 .00340
-2.124 6.280 .04010 .00060 .13100 .17110 .00640 .00700
GRADIENT .00598 .00047 .01629 .02229 .00121 .00166

RUN NO. 125/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0 BETAO CHE1 CHEO CHM1 CHM2 CHM3 CHM4
-0.096 -6.268 .00750 .00060 .00080 .01620 .00380 .00440
-0.085 -4.207 .00330 .00740 .00580 .00250 .01730 .02480
-0.084 .007 .02060 .01070 .07400 .09460 .02130 .03210
-0.062 4.192 .04420 .00560 .13620 .18040 .00860 .01410
-0.055 6.267 .05150 .00500 .16290 .21440 .00730 .01440
GRADIENT .00568 .00021 .01553 .02118 .00103 .00127

DATE 21 OCT 75

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1A1B - FORCE SOURCE DATA TABULATION

(RETN38) (12 OCT 74)

AME597-01911A1) LVAP ORBITER-ALL ML SEALED

REFERENCE DATA

SREF = 2690.0000 SO.FT.
 LREF = 1297.0000 IN.
 BREF = 1297.0000 IN.
 SCALE = .0300

XPRP = 976.0000 IN. XT
 YPRP = .0000 IN. YT
 ZPRP = 400.0000 IN. ZT

ELV-1B = -4.000
 RUDDER = .000
 MACH = 2.500

PARAMETRIC DATA

ELV-08 = -4.000
 SPOBRK = .000
 RN/L = 2.000

RUN NO. 126/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	CHE1	CHE0	CHM1	CHM2	CHM3	CHM4
1.985	-6.257	.00050	-.00620	.00650	-.00800	.01600	-.02210
1.981	-2.089	-.01950	-.01810	.06930	-.08770	.04200	-.05010
1.994	2.124	-.04460	-.01590	.13780	-.18240	.03320	-.04910
2.005	6.266	-.06370	-.01160	.19200	-.20570	.02300	-.03460
	GRADIENT	-.00596	.00052	.01650	-.02248	-.00209	.00261

RUN NO. 127/ 0 RN/L = 2.54 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	CHE1	CHE0	CHM1	CHM2	CHM3	CHM4
4.105	-6.249	-.00420	-.01180	.01940	-.02410	.02970	-.04150
4.105	-4.195	-.01150	-.01880	.04090	-.05230	.04700	-.06590
4.105	.015	-.03530	-.02800	.11280	-.14820	.06550	-.09350
4.102	4.191	-.05580	-.01910	.18060	-.23640	.05060	-.06970
4.104	6.248	-.06120	-.01700	.14610	-.25730	.04690	-.06390
	GRADIENT	-.00528	-.00004	.01666	-.02195	.00043	-.00046

RUN NO. 128/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	CHE1	CHE0	CHM1	CHM2	CHM3	CHM4
6.207	-4.161	-.00960	-.02090	.04460	-.05420	.06310	-.08400
6.210	-2.065	-.01920	-.02600	.07370	-.09290	.07640	-.10240
6.206	.028	-.03280	-.02910	.11380	-.14670	.08310	-.11220
6.219	2.132	-.04520	-.02950	.14690	-.19220	.08400	-.11350
	GRADIENT	-.03490	-.02750	.17250	-.22740	.07910	-.10700
		-.00558	-.00084	.01574	-.02132	.00190	-.00274

REFERENCE DATA

SREF = 2000.0000 SQ. FT. XTRP = 976.0000 IN. XT
 LREF = 1297.0000 IN. YTRP = .0000 IN. YT
 BREF = 1297.0000 IN. ZTRP = 400.0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

ELV-18 =
 RUDDER =
 MACH =
 8.000 ELV-08 =
 .000 SPOBRK =
 2.200 RN/L =
 -4.000
 .000
 2.500

RUN NO. 129/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0	BETA0	CHE1	CHE0	CHM1	CHM2	CHM3	CHM4
-6.357	-4.340	.02490	.01660	-.04070	.06560	-.03200	.04860
-6.345	-2.232	.01390	.01320	-.01810	.03190	-.02670	.03990
-6.330	-1.129	-.00010	.01270	.01040	-.01040	-.02630	.03900
-6.316	1.202	-.00300	.01340	.03830	-.04720	-.02740	.04080
-6.303	4.057	-.01890	.01310	.06660	-.08550	-.02770	.04070
	GRADIENT	-.00526	-.00032	.01290	-.01816	.00038	-.00071

RUN NO. 130/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0	BETA0	CHE1	CHE0	CHM1	CHM2	CHM3	CHM4
-4.273	-6.424	.02230	.01130	-.03360	.03590	-.01860	.02990
-4.268	-4.362	.01690	.01120	-.02550	.04240	-.01990	.03110
-4.242	-1.145	-.00770	.00740	.03370	-.04140	-.01340	.02080
-4.216	4.041	-.03020	.00880	.09230	-.12250	-.01740	.02510
-4.212	6.106	-.04040	.01040	.12330	-.16060	-.02030	.03070
	GRADIENT	-.00561	-.00028	.01402	-.01362	.00030	-.00060

RUN NO. 131/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0	BETA0	CHE1	CHE0	CHM1	CHM2	CHM3	CHM4
-2.199	-6.426	.01290	.00590	-.01640	.02930	-.00570	.01160
-2.186	-2.253	-.00290	.00210	.02140	-.02430	-.00030	.00240
-2.171	1.947	-.02820	.00360	.09920	-.11740	-.00430	.00790
-2.158	6.083	-.04960	.00670	.14670	-.19630	-.01090	.01760
	GRADIENT	-.00602	.00036	.01614	-.02217	-.00095	.00131

RUN NO. 132/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0	BETA0	CHE1	CHE0	CHM1	CHM2	CHM3	CHM4
-1.130	-6.431	.00690	.00230	-.00350	.01040	-.00520	-.00280
-1.135	-4.375	.00130	-.00340	.01410	-.01280	.01480	-.01820
-1.128	-1.174	-.02530	-.00480	.08200	-.10720	.0130	-.01910
-1.113	4.000	-.05040	.00130	.14610	-.19650	-.00020	.00150
-.090	6.061	-.06130	.00190	.17590	-.23720	-.00220	.00410
	GRADIENT	-.00617	.00056	.01576	-.02193	-.00179	.00235

REFERENCE DATA

SREF = 2690.0000 SQ.FT.

LREF = 1297.0000 IN.

BREF = 1297.0000 IN.

SCALE = .0300

AMES97-019(1A81) LVAP ORBITER-ALL HL SEALED

XMRP = 976.0000 IN. XT

YMRP = .0000 IN. YT

ZMRP = 400.0000 IN. ZT

ELV-1B = 8.000

RUDDER = .000

MACH = 2.200

ELV-OB = -4.000

SPOBRK = .000

RN/L = 2.500

PARAMETRIC DATA		ELV-1B =		ELV-OB =		SPOBRK =		RN/L =	
RUN NO. 133/ 0		RN/L = 2.51		GRADIENT INTERVAL = -5.00/ 5.00		ELV-1B =		ELV-OB =	
ALPHA0		CHE1		CHE0		CHE1		CHE0	
BETA0		CHE1		CHE0		CHE1		CHE0	
1.516		.00120		-.00230		.01300		-.01160	
1.916		-.02140		-.01220		.07400		-.09540	
1.931		-.05100		-.00610		.14930		-.20030	
1.943		-.07430		-.00120		.20610		-.28030	
GRADIENT		-.00704		.00145		.01792		-.02496	
RUN NO. 134/ 0		RN/L = 2.52		GRADIENT INTERVAL = -5.00/ 5.00		CHE1		CHE0	
ALPHA0		CHE1		CHE0		CHE1		CHE0	
BETA0		CHE1		CHE0		CHE1		CHE0	
4.018		-.00450		-.00790		.02590		-.03040	
4.022		-.01280		-.01480		.04800		-.06070	
4.025		-.03230		-.01910		.12090		-.15920	
4.034		3.991		-.06610		.19650		-.26260	
4.038		6.064		-.07490		.21480		-.28970	
GRADIENT		.00638		.00051		.01778		-.02417	
RUN NO. 135/ 0		RN/L = 2.52		GRADIENT INTERVAL = -5.00/ 5.00		CHE1		CHE0	
ALPHA0		CHE1		CHE0		CHE1		CHE0	
BETA0		CHE1		CHE0		CHE1		CHE0	
6.134		-.01640		-.01820		.05910		-.07560	
6.130		-.02730		-.02470		.08930		-.11660	
6.130		-.04110		-.02730		.12910		-.17020	
6.134		1.951		-.02470		.16600		-.22100	
6.135		3.996		-.02080		.19450		-.26030	
GRADIENT		.00608		-.00025		.01667		-.02273	

CHM3		CHM4		CHM3		CHM4	
.01810		-.03580		.02790		-.03580	
-.04550		-.05870		.04390		-.05870	
-.02360		-.06820		.04910		-.06820	
-.00900		-.03890		.02840		-.03890	
.00521		-.03240		.02440		-.03240	
		.00235		-.00185			
CHM3		CHM4		CHM3		CHM4	
.01580		-.07230		.05410		-.07230	
.03330		-.09300		.06830		-.09300	
.01750		-.09760		.07030		-.09760	
.00780		-.08850		.06380		-.08850	
-.00376		-.07420		.05330		-.07420	
		.00029					

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IAB1B - FORCE SOURCE DATA TABULATION

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AMF597-019(IAB1) LVAP ORBITER-ALL HL SEALED (RETH38) (12 OCT 74)

REFERENCE DATA

SREF = 2690.0000 SO.FT.
 LREF = 1297.0000 IN.
 BREF = 1297.0000 IN.
 SCALE = .0300

XMRP = 976.0000 IN. XT
 YMRP = .0000 IN. YT
 ZMRP = 400.0000 IN. ZT

PARAMETRIC DATA

ELV-1B = 8.000 ELV-0B = -4.000
 RUDDER = .000 SPOBRK = .000
 MACH = 2.500 RN/L = 2.500

RUN NO. 136/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0	BETA0	CHE0	CHE1	CHE2	CHE3	CHM4
-6.289	-3.991	.00930	.01180	.02200	.02440	.03620
-6.280	-1.881	.00310	.01070	.01720	.02330	.03410
-6.268	.215	.01630	.01190	.05900	.02520	.03700
-6.259	2.322	.02310	.06470	.08780	.02640	.03870
-6.250	4.369	.03250	.01320	.08910	.02840	.04160
	GRADIENT	.00496	.01216	.01712	.00053	.00074

RUN NO. 137/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0	BETA0	CHE1	CHE2	CHE3	CHM4
-4.232	-6.049	.01310	.00870	.03220	.02450
-4.224	-3.999	.00140	.00790	.00090	.02340
-4.198	.210	.02480	.00720	.09110	.02190
-4.182	4.367	.04130	.01100	.14820	.03280
-4.175	6.419	.05140	.01240	.18380	.03670
	GRADIENT	.00511	.00037	.01252	.00075

RUN NO. 138/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0	BETA0	CHE1	CHE2	CHE3	CHM4
-2.171	-6.052	.00450	.00440	.00640	.01070
-2.155	-1.900	.02010	.00150	.07380	.00430
-2.141	2.289	.03360	.00580	.14440	.01730
-2.131	6.395	.06070	.00940	.21520	.02750
	GRADIENT	.00466	.00103	.01220	.00320

RUN NO. 139/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0	BETA0	CHE1	CHE2	CHE3	CHM4
-1.107	-6.062	.00120	.00100	.01390	.00630
-1.104	-4.014	.01210	.00110	.04050	.00510
-1.095	.177	.04060	.00200	.14410	.00330
-1.081	4.323	.05960	.00590	.21180	.01040
-1.076	6.389	.07200	.00660	.25200	.01100
	GRADIENT	.00570	.00084	.01910	.00173

REFERENCE DATA
 SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT
 B-REF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA
 ELV-1B = 8.000 ELV-08 = -4.000
 RUDDER = .000 SPDRK = .000
 MACH = 2.500 RN/L = 2.500

AMES97-019(1AB1) LVAP ORBITER-ALL HL SEALED

ALPHA	BETA	CHE1	CHEO	CHM1	CHM2	CHM3	CHM4
1.937	5.052	-.00740	-.00590	.02970	-.03710	.01810	-.02400
1.942	-1.906	-.03430	-.00440	.03370	-.12800	.01090	-.01530
1.953	2.279	-.06040	.00150	.15180	-.21220	-.00170	.00330
1.968	6.390	-.08020	.00330	.19700	-.27710	-.00350	.00680
GRADIENT		-.00624	.00141	.01368	-.02012	-.00301	.00444

ALPHA	BETA	CHE1	CHEO	CHM1	CHM2	CHM3	CHM4
3.403	-6.044	-.01370	-.01060	.04420	-.05790	.03000	-.04060
3.401	-4.060	-.02610	-.01250	.07860	-.10480	.03130	-.04380
3.409	.180	-.05540	-.00640	.15340	-.20880	.01580	-.02210
3.415	3.721	-.07760	-.00250	.20570	-.28330	.00890	-.01140
3.418	6.394	-.08320	-.00160	.21780	-.30100	.00850	-.01010
GRADIENT		-.00663	.00129	.01638	-.02299	-.00290	.00420

ALPHA	BETA	CHE1	CHEO	CHM1	CHM2	CHM3	CHM4
6.122	-4.040	-.02700	-.01830	.08520	-.11220	.04700	-.06530
6.126	-1.890	-.04080	-.01630	.12040	-.16120	.04270	-.05960
6.130	.192	-.05500	-.01400	.16150	-.21650	.03550	-.04940
6.133	2.291	-.06680	-.01080	.18960	-.25640	.02790	-.03860
6.136	3.707	-.07290	-.00890	.20550	-.27840	.02440	-.03330
GRADIENT		-.00601	.00126	.01583	-.02184	-.00305	.00432

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1A818 - FORCE SOURCE DATA TABULATION

(RETH39) (12 OCT 74)

AMES97-019(1A81) LVAP ORBITER-ALL HL SEALED

REFERENCE DATA

SREF = 2690.0000 SQ.FT.
 LREF = 1297.0000 IN.
 BREF = 1297.0000 IN.
 SCALE = .0300

XHRP = 976.0000 IN. XT
 YHRP = .0000 IN. YT
 ZHRP = 400.0000 IN. ZT

ELV-1B = .000
 RUDDER = .000
 MACH = 1.550
 ELV-OB = .000
 SPOBRK = .000
 RN/L = 2.500

PARAMETRIC DATA

RUN NO.	143/ 0	RN/L =	2.52	GRADIENT INTERVAL =	-5.00/ 5.00
ALPHA0	BETA0	CHE1	CHE0	CHM1	CHM2
-6.293	.406	.13360	.00910	-.23990	.37360
GRADIENT		.00000	.00000	.00000	.00000
CHM4					.02070
					.00000
RUN NO.	144/ 0	RN/L =	2.53	GRADIENT INTERVAL =	-5.00/ 5.00
ALPHA0	BETA0	CHE1	CHE0	CHM1	CHM2
-4.229	-3.806	.11470	.01030	-.21580	.33060
-4.210	.382	.12370	-.00350	-.21710	.34080
-4.235	3.933	.12700	-.00730	-.21760	.34460
GRADIENT		.00161	-.00230	-.00023	.00183
CHM4					.00438
					.01610
					-.02460
					-.03510
					-.00671
RUN NO.	145/ 0	RN/L =	2.53	GRADIENT INTERVAL =	-5.00/ 5.00
ALPHA0	BETA0	CHE1	CHE0	CHM1	CHM2
-.028	-5.881	.09690	.00280	-.18390	.28090
-.024	-3.844	.11130	-.00160	-.20290	.31430
-.022	.347	.10110	-.01900	-.17070	.27190
.001	3.898	.09900	-.02290	-.16020	.25920
.014	6.597	.09990	-.02470	-.16140	.26130
GRADIENT		-.00161	-.00279	.00558	-.00721
CHM4					.00645
					-.01340
					-.02790
					-.08140
					-.09870
					-.10460
					-.00925
RUN NO.	146/ 0	RN/L =	2.52	GRADIENT INTERVAL =	-5.00/ 5.00
ALPHA0	BETA0	CHE1	CHE0	CHM1	CHM2
3.553	-3.877	.08910	-.01460	-.16130	.25040
3.564	.361	.08140	-.02490	-.13060	.21200
3.575	3.908	.07260	-.03000	-.10730	.17980
GRADIENT		-.00211	-.00199	.00695	-.00907
CHM4					.00481
					-.07100
					-.10740
					-.12350
					-.00680
RUN NO.	147/ 0	RN/L =	2.52	GRADIENT INTERVAL =	-5.00/ 5.00
ALPHA0	BETA0	CHE1	CHE0	CHM1	CHM2
6.255	.393	.07430	-.02930	-.11760	.19200
GRADIENT		.00000	.00000	.00000	.00000
CHM4					.09140
					.00000
					-.12070
					.00000

REFERENCE DATA
 SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT
 LREF = 1437.0000 IN. YMRP = .0000 IN. YT
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

ELV-1B = .000 ELV-0B = .000
 RUDDER = .000 SPDBRK = .000
 MACH = 2.000 RN/L = 2.500

RUN NO. 148/ 0 RN/L = 2.55 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0 BETAO
 -6.299 .072
 GRADIENT .00000
 CHEO .00510
 CHE1 -.11860
 CHM1 .00000
 CHM2 .00000
 CHM3 -.01110
 CHM4 .01620
 .00000

RUN NO. 149/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0 BETAO
 -4.312 -4.221
 -4.288 .038
 -4.260 3.604
 GRADIENT -.00297
 CHEO .00060
 CHE1 -.12630
 CHM1 .00000
 CHM2 .19840
 CHM3 .00130
 CHM4 -.00070
 -.00400
 -.00120
 -.00009

RUN NO. 150/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0 BETAO
 -.077 -6.251
 -.075 -4.195
 -.072 .017
 -.054 3.568
 -.044 6.274
 GRADIENT -.00466
 CHEO -.00840
 CHE1 .05270
 CHM1 -.09120
 CHM2 .14390
 CHM3 .02880
 CHM4 -.03720
 -.06050
 -.06560
 -.04420
 -.04410
 .00200

RUN NO. 151/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0 BETAO
 3.465 -4.189
 3.478 .022
 3.487 3.575
 GRADIENT -.00553
 CHEO -.02680
 CHE1 .03790
 CHM1 -.05610
 CHM2 .09400
 CHM3 .07370
 CHM4 -.10050
 -.13270
 -.10860
 -.00125

RUN NO. 152/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0 BETAO
 8.162 .040
 GRADIENT .00000
 CHEO -.04130
 CHE1 .01300
 CHM1 .00200
 CHM2 .01100
 CHM3 .11150
 CHM4 -.15290
 .00000

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IABIB - FORCE SOURCE DATA TABULATION

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AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED

(RETH41) (12 OCT 74)

REFERENCE DATA

SREF = 2690.0000 SQ.FT.
LREF = 1297.0000 IN.
BREF = 1297.0000 IN.
SCALE = .0300

XPRP = 976.0000 IN. XT
YPRP = .0000 IN. YT
ZPRP = 400.0000 IN. ZT

PARAMETRIC DATA

ELV-1B = .000
RUDDER = .000
MACH = 2.200
ELV-08 = .000
SPOBRK = .000
RN/L = 2.500

RUN NO. 153/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAO BETAO
-6.332
GRADIENT

RUN NO. 154/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAO BETAO
-4.327
-4.302
-4.281
GRADIENT

RUN NO. 155/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAO BETAO
-1.145
-1.137
-1.130
-1.117
-1.112
GRADIENT

RUN NO. 156/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAO BETAO
3.395
3.403
3.411
GRADIENT

RUN NO. 157/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAO BETAO
6.079
-1.145
GRADIENT

CHM4
-0.01280
-0.00000

CHM4
-0.00070
-0.00450
-0.00360
-0.00032

CHM4
-0.03250
-0.04990
-0.04390
-0.02200
-0.01950
-0.00353

CHM4
-0.08980
-0.09970
-0.06770
-0.00270

CHM4
-0.13240
-0.00000

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1A81B - FORCE SOURCE DATA TABULATION

AMES97-01911A81) LVAP ORBITER-ALL HL SEALED

(RETN43) (12 OCT 74)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

ELV-1B = 8.000 ELV-0B = .000
 RUDDER = .000 SPOBRK = .000
 MACH = 1.550 RN/L = 2.500

RUN NO. 163/ 0 RN/L = 2.54 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAO BETAO
 -6.289 .408
 GRADIENT .00000

RUN NO. 164/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAO BETAO
 -4.227 -3.808
 -4.204 .384
 -4.169 3.933
 GRADIENT -.00035

RUN NO. 165/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAO BETAO
 -2.122 .375
 GRADIENT .00000

RUN NO. 166/ 0 RN/L = 2.51 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAO BETAO
 -.030 -5.879
 -.027 -3.845
 -.030 -1.739
 -.019 .351
 -.003 2.455
 .009 3.897
 .019 6.597
 GRADIENT -.00248

RUN NO. 167/ 0 RN/L = 2.51 GRADIENT INTERVAL = -5.00/ 5.00

ALPHAO BETAO
 2.072 .352
 GRADIENT .00000

CHM1 CHM2 CHM3 CHM4
 .00460 -.09120 .14940 -.00080
 .00000 .00000 .00000 .00000

CHM1 CHM2 CHM3 CHM4
 -.08620 .13580 .00350 .00220
 -.00710 .11700 .02980 .03690
 -.01010 .10660 .03400 .04410
 -.00207 .00343 -.00379 .00401

CHM1 CHM2 CHM3 CHM4
 -.01600 -.04910 .08770 .05400
 .00000 .00000 .00000 .00000

CHM1 CHM2 CHM3 CHM4
 -.05830 .09070 .02260 .02280
 -.00480 .11130 .03360 .03840
 -.01710 .06640 .06320 .08030
 -.02060 .05670 .07000 .09060
 -.02350 .04530 .07720 .10070
 -.02560 .02660 .08140 .10690
 -.02730 .02200 .08590 .11320
 -.00247 .00723 -.00970 .00564

CHM1 CHM2 CHM3 CHM4
 -.02280 .02980 .07730 .10070
 .00000 .00000 .00000 .00000

AMES97-019(1A1B1) LVAP ORBITER-ALL HL SEALED (RETH43) (12 OCT 74)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT
LREF = 1297.0000 IN. YMRP = .0000 IN. YT
BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
SCALE = .0300

PARAMETRIC DATA

ELV-1B = 8.000 ELV-08 = .000
RUDDER = .000 SPOBRK = .000
MACH = 1.550 RN/L = 2.500

RUN NO. 168/ 0 RN/L = 2.51 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0 BETAO CHE1 CHEO CHM1 CHM2 CHM3 CHM4
3.555 -3.814 .02730 -.01760 -.03570 .06290 .06500
3.560 .365 .01210 -.02730 .00870 .00340 .08820
3.578 3.907 .00130 -.03160 -.04140 -.04000 .09800
GRADIENT -.00338 -.00183 .01000 -.01335 .00431

RUN NO. 169/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0 BETAO CHE1 CHEO CHM1 CHM2 CHM3 CHM4
6.256 .389 .00690 -.03110 .01960 -.01270 .09680
GRADIENT .00000 .00000 .00000 .00000 .00000

AMES97-019(1A1B1) LVAP ORBITER-ALL HL SEALED

(RETH44) (12 OCT 74)

REFERENCE DATA

SREF = 2690.0000 SQ.FT. XMRP = 976.0000 IN. XT
LREF = 1297.0000 IN. YMRP = .0000 IN. YT
BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
SCALE = .0300

PARAMETRIC DATA

ELV-1B = 8.000 ELV-08 = .000
RUDDER = .000 SPOBRK = .000
MACH = 2.000 RN/L = 2.500

RUN NO. 170/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0 BETAO CHE1 CHEO CHM1 CHM2 CHM3 CHM4
-6.258 .071 .00910 .00330 -.00780 .01700 -.00550
GRADIENT .00000 .00000 .00000 .00000 .00000

RUN NO. 171/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0 BETAO CHE1 CHEO CHM1 CHM2 CHM3 CHM4
-4.258 -4.163 .02160 -.00010 -.03470 .05640 .00460
-4.231 .037 .00350 -.00240 .01240 -.00900 .00830
-4.258 3.599 -.01500 .00290 .06090 -.07600 .00810
GRADIENT -.00470 -.00037 .01228 -.01701 .00046

RUN NO. 172/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0 BETAO CHE1 CHEO CHM1 CHM2 CHM3 CHM4
-2.161 .037 -.00520 -.01100 .03640 -.04160 .02830
GRADIENT .00000 .00000 .00000 .00000 .00000

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LAB18 - FORCE SOURCE DATA TABULATION

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(REFTH44) 12 OCT 74 :

AMES97-0191AB1) LVAP ORBITER-ALL HL SEALED

REFERENCE DATA

[illegible]

PARAMETRIC DATA

ELV-1B
RUDDER
MACH

GRM NO	177	0	BN/1	2.52	GRADIENT INTERVAL	-5.00/	5.00
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ALPHA	BETA	CH-E1	CH-E2	CH-M1	CH-M2	CH-M3	CH-M4
-0.93	-6.250	0.1110	-0.0960	-0.01330	0.02430	0.03240	-0.04200
-0.91	-4.198	0.0630	0.01670	-0.0030	0.06660	0.04720	-0.06300
-0.90	-2.083	0.0310	0.02030	0.03060	-0.02370	0.05450	-0.07480
-0.77	0.019	-0.1790	0.02000	0.06780	-0.08570	0.05190	-0.07190
-0.67	2.124	0.2980	0.01710	0.10100	-0.13080	0.04310	-0.06010
-0.59	3.572	0.4010	-0.01420	0.13060	-0.17060	0.03690	-0.05130
-0.53	6.276	0.4850	-0.00380	0.15660	-0.20420	0.03700	-0.05130
-0.47	8.642	0.6500	0.00380	0.16780	-0.02281	-0.00156	-0.00195

RAIN NO	174/ 0	BN/L	= 2.52	GRADIENT	INTERVAL	= -5.00/ 5.00
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ALPHA	BETA	CH1	CH2	CH3	CH4
1.987	0.23	-0.2800	-0.12480	0.07280	-0.10110
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

BN/L NO	176/ 0	BN/L =	2.52	GRADIENT INTERVAL =	-5.00/	5.00
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ALPHA	BETA	CH-1	CH-2	CH-3	CH-4
3.465	-4.234	-0.0670	-0.2740	-0.4170	-1.0500
3.479	.019	-0.3110	-0.3760	-1.3720	-1.3690
3.485	3.581	-0.0570	-0.3140	-1.7930	-1.1220
	GRADIENT	-0.0650	-0.0057	-0.02491	-0.00113
				.00056	

BLN NO.	176/ Q	RN/L	2.52	GRADIENT INTERVAL	-5.00/ 5.00
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ALPHA0	0.167	BETA0	0.08	CHE1	-0.0320	CHE0	-0.0420	CHM1	-0.11470	CHM2	-0.14930	CHM3	-0.11470	CHM4	-0.15710
				GRADIENT	0.0000		0.0000		0.0000		0.0000		0.0000		0.0000

TAB18 - FORCE SOURCE DATA TABULATION

AMES97-019(148): LVAP ORBITER-ALL HL SEALED

REFERENCE DATA				PARAMETRIC DATA			
SREF = 2690.0000 SQ.FT.	YMRP = 976.0000 IN. XT	ELV-18 =		8.000	ELV-08 =	.000	
LREF = 1297.0000 IN.	YMRP = .0000 IN. YT	RUDDER =		.000	SPDRK =	.000	
BREF = 1297.0000 IN.	ZMRP = 400.0000 IN. ZT	MACH =		2.200	RN/L =	2.500	
SCALE = .0300							
RUN NO. 177/ 0				GRADIENT INTERVAL = -5.00/ 5.00			
ALPHA0	BETA0	CHE1	CHE0	CHM1	CHM2	CHM3	CHM4
-6.332	-.120	.0090	.0020	.0050	-.00470	-.00350	.00560
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000
RUN NO. 178/ 0				GRADIENT INTERVAL = -5.00/ 5.00			
ALPHA0	BETA0	CHE1	CHE0	CHM1	CHM2	CHM3	CHM4
-4.288	-4.351	.01670	.00050	-.02700	.04360	.00320	-.00270
-4.320	-.149	-.00690	-.00270	.02840	-.03530	.00920	-.01190
-4.300	3.413	-.02730	-.00110	.08380	-.11110	.00470	-.00580
GRADIENT		-.00567	-.00022	.01424	-.01989	.00023	-.00045
RUN NO. 179/ 0				GRADIENT INTERVAL = -5.00/ 5.00			
ALPHA0	BETA0	CHE1	CHE0	CHM1	CHM2	CHM3	CHM4
-2.199	-.165	-.01470	-.00840	.05110	-.06580	.02210	-.03050
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000
RUN NO. 180/ 0				GRADIENT INTERVAL = -5.00/ 5.00			
ALPHA0	BETA0	CHE1	CHE0	CHM1	CHM2	CHM3	CHM4
-1.116	-6.442	.00690	-.00780	-.00610	.01300	.02760	-.03540
-1.115	-4.378	.00110	-.01450	.01130	-.01020	.03950	-.05400
-1.112	-2.284	-.01120	-.01530	.04410	-.05530	.04060	-.05580
-1.108	-.175	-.02480	-.01460	.07680	-.10160	.03690	-.05150
-1.103	1.938	-.03840	-.01100	.11050	-.14880	.02830	-.03930
-1.095	3.383	-.05020	-.00850	.14140	-.19160	.02270	-.03110
GRADIENT		-.06110	-.00700	.17010	-.23120	.02190	-.02890
		-.00656	.00081	.01650	-.02305	-.00229	.00310
RUN NO. 181/ 0				GRADIENT INTERVAL = -5.00/ 5.00			
ALPHA0	BETA0	CHE1	CHE0	CHM1	CHM2	CHM3	CHM4
1.933	-.155	-.03740	-.02000	.10840	-.14580	.05190	-.07200
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000

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IAB18 - FORCE SOURCE DATA TABULATION

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(RETN45) (12 OCT 74)

AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED

REFERENCE DATA

SREF = 2000.0000 SQ.FT.
 LREF = 1297.0000 IN.
 BREF = 1297.0000 IN.
 SCALE = .0300

XTRP = 976.0000 IN. XT
 YTRP = .0000 IN. YT
 ZTRP = 400.0000 IN. ZT

PARAMETRIC DATA

ELV-1B =
 RUDDER =
 MACH =

8.000 ELV-OB =
 .000 SPOBRK =
 2.200 RN/L =

.000
 .000
 2.500

RUN NO. 182/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0
 3.402
 3.403
 3.408

BETA0
 -4.411
 -.03810
 -.163
 3.382
 GRADIENT

CHE0
 -.02470
 -.02890
 -.01920
 -.00655

CHM1
 .04370
 .11630
 .19230
 .01872

CHM2
 -.05750
 -.15440
 -.25890
 -.02571

CHM3
 .07070
 .07600
 .05410
 -.00202

RUN NO. 183/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0
 6.072

BETA0
 -.153
 -.04030
 .00000
 GRADIENT

CHE0
 -.03870
 .00000
 .00000

CHM1
 .12430
 .00000
 .00000

CHM2
 -.16460
 .00000
 .00000

CHM3
 .09820
 .00000
 .00000

AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED

(RETN46) (12 OCT 74)

REFERENCE DATA

SREF = 2000.0000 SQ.FT.
 LREF = 1297.0000 IN.
 BREF = 1297.0000 IN.
 SCALE = .0300

XTRP = 976.0000 IN. XT
 YTRP = .0000 IN. YT
 ZTRP = 400.0000 IN. ZT

PARAMETRIC DATA

ELV-1B =
 RUDDER =
 MACH =

10.000 ELV-OB =
 .000 SPOBRK =
 1.550 RN/L =

-4.000
 .000
 2.500

RUN NO. 184/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0
 -8.268

BETA0
 .417
 .04160
 .00000
 GRADIENT

CHE0
 .02090
 .00000
 .00000

CHM1
 -.05750
 .00000
 .00000

CHM2
 .09910
 .00000
 .00000

CHM3
 -.03750
 .00000
 .00000

RUN NO. 185/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0
 -4.270
 -4.251
 -4.215

BETA0
 -3.851
 .391
 .02810
 3.923
 GRADIENT

CHE0
 .02270
 .00870
 .00620
 -.00216

CHM1
 -.05610
 -.03630
 -.02330
 .00423

CHM2
 .09210
 .06750
 .05140
 -.00525

CHM3
 -.03350
 -.00940
 -.00600
 .00361

RUN NO. 186/ 0 RN/L = 2.52 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0
 -2.110

BETA0
 .382
 .02320
 .00000
 GRADIENT

CHE0
 -.00040
 .00000
 .00000

CHM1
 -.01650
 .00000
 .00000

CHM2
 .03970
 .00000
 .00000

CHM3
 .01460
 .00000
 .00000

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IA81B - FORCE SOURCE DATA TABULATION

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(RETH46) (12 OCT 74)

AMES97-019 (LAB1) LVAP ORBITER-ALL ML SEALED

REFERENCE DATA

SREF	-	2690.0000
LREF	-	1297.0000
TREF	-	1297.0000
SCHE	-	.0300

XMRP	976.0000	IN.	XT
YMRP	.0000	IN.	YT
ZMRP	400.0000	IN.	ZT

PARAMETRIC DATA

ELV-1B	-	10.000	ELV-OB	-	-4.000
RUDDER	-	.000	SPOBRK	-	.000
MACH	-	1.550	RN/L	-	2.500

DATE	NO	187/	0	BN/1	2	52	GRADIENT	INTERVAL	-	-5.00/	5.00
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ALPHA	BETA	CM1	CM0	CM1	CM2	CM3	CM4
0.00	0.00	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0.01	0.01	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
0.02	0.02	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
0.03	0.03	0.0009	0.0009	0.0009	0.0009	0.0009	0.0009
0.04	0.04	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016
0.05	0.05	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025
0.06	0.06	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036
0.07	0.07	0.0049	0.0049	0.0049	0.0049	0.0049	0.0049
0.08	0.08	0.0064	0.0064	0.0064	0.0064	0.0064	0.0064
0.09	0.09	0.0081	0.0081	0.0081	0.0081	0.0081	0.0081
0.10	0.10	0.0100	0.0100	0.0100	0.0100	0.0100	0.0100
0.11	0.11	0.0121	0.0121	0.0121	0.0121	0.0121	0.0121
0.12	0.12	0.0144	0.0144	0.0144	0.0144	0.0144	0.0144
0.13	0.13	0.0169	0.0169	0.0169	0.0169	0.0169	0.0169
0.14	0.14	0.0196	0.0196	0.0196	0.0196	0.0196	0.0196
0.15	0.15	0.0225	0.0225	0.0225	0.0225	0.0225	0.0225
0.16	0.16	0.0256	0.0256	0.0256	0.0256	0.0256	0.0256
0.17	0.17	0.0289	0.0289	0.0289	0.0289	0.0289	0.0289
0.18	0.18	0.0324	0.0324	0.0324	0.0324	0.0324	0.0324
0.19	0.19	0.0361	0.0361	0.0361	0.0361	0.0361	0.0361
0.20	0.20	0.0400	0.0400	0.0400	0.0400	0.0400	0.0400
0.21	0.21	0.0441	0.0441	0.0441	0.0441	0.0441	0.0441
0.22	0.22	0.0484	0.0484	0.0484	0.0484	0.0484	0.0484
0.23	0.23	0.0529	0.0529	0.0529	0.0529	0.0529	0.0529
0.24	0.24	0.0576	0.0576	0.0576	0.0576	0.0576	0.0576
0.25	0.25	0.0625	0.0625	0.0625	0.0625	0.0625	0.0625
0.26	0.26	0.0676	0.0676	0.0676	0.0676	0.0676	0.0676
0.27	0.27	0.0729	0.0729	0.0729	0.0729	0.0729	0.0729
0.28	0.28	0.0784	0.0784	0.0784	0.0784	0.0784	0.0784
0.29	0.29	0.0841	0.0841	0.0841	0.0841	0.0841	0.0841
0.30	0.30	0.0900	0.0900	0.0900	0.0900	0.0900	0.0900
0.31	0.31	0.0961	0.0961	0.0961	0.0961	0.0961	0.0961
0.32	0.32	0.1024	0.1024	0.1024	0.1024	0.1024	0.1024
0.33	0.33	0.1089	0.1089	0.1089	0.1089	0.1089	0.1089
0.34	0.34	0.1156	0.1156	0.1156	0.1156	0.1156	0.1156
0.35	0.35	0.1225	0.1225	0.1225	0.1225	0.1225	0.1225
0.36	0.36	0.1296	0.1296	0.1296	0.1296	0.1296	0.1296
0.37	0.37	0.1369	0.1369	0.1369	0.1369	0.1369	0.1369
0.38	0.38	0.1444	0.1444	0.1444	0.1444	0.1444	0.1444
0.39	0.39	0.1521	0.1521	0.1521	0.1521	0.1521	0.1521
0.40	0.40	0.1600	0.1600	0.1600	0.1600	0.1600	0.1600
0.41	0.41	0.1681	0.1681	0.1681	0.1681	0.1681	0.1681
0.42	0.42	0.1764	0.1764	0.1764	0.1764	0.1764	0.1764
0.43	0.43	0.1849	0.1849	0.1849	0.1849	0.1849	0.1849
0.44	0.44	0.1936	0.1936	0.1936	0.1		

ITEM NO	188/ 0	RN/L	2.53	GRADIENT INTERVAL	- 5.00/	5.00
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ALPHA	2.07%	BETA	362	CME1	0.0630	CME0	-0.00870	CM1	0.02520	CM2	-0.01900	CM3	0.03990	CM4	-0.00790
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BM NO	129/ 0	8 1/1	2.52	GRADIENT INTERVAL =	-5.00/	5.00
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ALPHA	BETA	CH1	CH2	CH3	CH4
3.563	-3.860	-0.0350	-0.0900	0.2920	-0.3270
3.565	.374	-0.0100	0.4390	0.5140	-0.0640
3.576	3.899	-0.0130	0.0780	0.0580	-0.0780
		-0.0170	-0.127	0.041	-0.0512
		-0.0181	-0.1471		-0.0512

ITEM NO	1001	2	BN/1	2.53	GRADIENT INTERVAL	-5.00/	5.00
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ALPHA	BETA	CME1	CME0	CME1	CME2	CME3	CME4
6.314	.993	-.00630	-.01630	.05320	-.05940	.06260	-.08090
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000

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IAB1B - FORCE SOURCE DATA TABULATION
AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED

(RETN7) (12 OCT 74)

REFERENCE DATA

SREF = 2590.0000 SQ.FT.
LREF = 1297.0000 IN.
BREF = 1297.0000 IN.
SCALE = .0300

XMRP = 976.0000 IN. XT
YMRP = .0000 IN. YT
ZMRP = 400.0000 IN. ZT

PARAMETRIC DATA

ELV-1B = 10.000 ELV-0B = 4.000
RUDDER = .000 SPOBRK = .000
MACH = 2.000 RN/L = 2.500

RUN NO. 191/ 0		RN/L = 2.55		GRADIENT INTERVAL = -5.00/ 5.00	
ALPHA0	BETA0	CHE0	CHM1	CHM2	CHM3
-6.283	.072	.01510	.02370	-.03130	CHM4
GRADIENT		.00000	.00000	.00000	.04640
					.00000
RUN NO. 192/ 0		RN/L = 2.55		GRADIENT INTERVAL = -5.00/ 5.00	
ALPHA0	BETA0	CHE0	CHM1	CHM2	CHM3
-4.315	-4.217	.01150	-.01250	.02400	CHM4
-4.282	.044	.00890	.04310	-.05210	.03330
-4.245	3.589	.02730	.09420	-.12150	.02660
GRADIENT		-.00040	.01365	-.01861	.02540
					-.00104
RUN NO. 193/ 0		RN/L = 2.54		GRADIENT INTERVAL = -5.00/ 5.00	
ALPHA0	BETA0	CHE0	CHM1	CHM2	CHM3
-2.148	.035	.00100	.06500	-.08130	CHM4
GRADIENT		.00000	.00000	.00000	-.00030
					.00000
RUN NO. 194/ 0		RN/L = 2.54		GRADIENT INTERVAL = -5.00/ 5.00	
ALPHA0	BETA0	CHE0	CHM1	CHM2	CHM3
-.077	-6.234	.00180	.00560	-.00140	CHM4
-.076	-4.257	-.00120	.02360	-.02480	-.00400
-.074	-2.080	-.01250	.05570	.01890	-.02350
-.070	.011	-.02810	.09560	.02470	-.03310
-.060	2.115	-.04050	.12650	.02340	-.03170
-.050	3.551	-.05020	.15770	.01740	-.02390
-.026	6.169	-.05840	.18240	.01170	-.01530
GRADIENT		-.00635	.01706	-.02342	-.01400
					.00119
RUN NO. 195/ 0		RN/L = 2.53		GRADIENT INTERVAL = -5.00/ 5.00	
ALPHA0	BETA0	CHE0	CHM1	CHM2	CHM3
1.992	.010	-.01720	.12410	-.16190	CHM4
GRADIENT		.00000	.00000	.00000	-.06210
					.00000

AMES97-019(IAB1) LVAP ORBITER-ALL HL SEALED

REFERENCE DATA

SREF = 2790.0000 SQ.FT. XMRP = 976.0000 IN. XT
 LREF = 1297.0000 IN. YMRP = .0000 IN. YT
 BREF = 1297.0000 IN. ZMRP = 400.0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

ELV-1B = 10.000 ELV-08 = -4.000
 RUDDER = .000 SPOBRK = .000
 MACH = 2.000 RN/L = 2.500

RUN NO. 196/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0	BETA0	CHE1	CHE0	CHM1	CHM2	CHM3	CHM4
3.472	-4.227	-.01440	-.01650	.05810	-.07250	.04750	-.06400
3.475	.017	-.04130	-.02690	.13090	-.17220	.06910	-.09590
3.480	3.492	-.06660	-.02090	.20460	-.27120	.05370	-.07460
	GRADIENT	-.00675	-.00064	.01891	-.02566	.00096	-.00160

RUN NO. 197/ 0 RN/L = 2.53 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA0	BETA0	CHE1	CHE0	CHM1	CHM2	CHM3	CHM4
6.220	.042	-.04300	-.03150	.13770	-.18070	.08380	-.11540
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000